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**SOCIAL CONFLICT IN CONSTRUCTION-RELATED**  
**INTER-ORGANIZATIONAL COLLECTIVITIES**

**A COMPARATIVE ANALYSIS AND STRUCTURAL EQUATION MODEL**

**VOLUME ONE OF TWO**

By

Allan Niel Osborne

A thesis submitted in partial fulfilment of the  
requirements for the degree of

Doctor of Philosophy

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# TABLE OF CONTENTS

<i>Table of Contents</i> .....	<i>ii</i>
<i>List of Illustrations</i> .....	<i>vi</i>
<i>List of Tables</i> .....	<i>ix</i>
<i>Acknowledgements</i> .....	<i>x</i>
<i>Abstract</i> .....	<i>xi</i>
<b>1 INTRODUCTION</b> .....	<b>1</b>
1.1 Background to the Study .....	1
1.2 Current State of Knowledge .....	3
1.3 Purpose Statement .....	6
1.4 Research Aim and Objectives .....	6
1.5 Scope, Delimitation and Significance of the Study .....	7
1.6 Research Design Strategy .....	8
1.7 Overview of the Thesis .....	10
<b>2 CONSTRUCTION INDUSTRY THEORY</b> .....	<b>13</b>
2.1 Introduction .....	13
2.2 United Kingdom Construction Industry .....	13
2.2.1 Comparative Physical Indicators .....	15
2.2.2 Comparative Economic Indicators .....	16
2.3 Construction Industry and the United Kingdom Economy .....	17
2.4 Classification of the Construction Industry .....	23
2.5 Characteristics of the Construction Industry .....	28
2.6 Fragmentation in the Construction Industry .....	32
2.7 Contracting in the Construction Industry .....	35
2.8 Speculative Building in the Construction Industry .....	36
2.9 Social Conflict and the Contracting System .....	37
2.10 Subcontracting in the Construction Industry .....	41
2.11 Summary .....	44
<b>3 CONSTRUCTION ORGANIZATION THEORY</b> .....	<b>46</b>
3.1 Introduction .....	46
3.2 Client Organizations .....	46
3.3 Client Organizations and Project Management .....	47
3.4 Client Organizational Attributes .....	51
3.5 Client Organizations and the Construction Industry .....	54
3.5.1 Latham Report .....	55
3.5.2 Egan Report .....	58
3.5.3 Implications of the Latham and Egan Reports .....	65
3.6 Definition of Client Organization Systems .....	67
3.7 Classification of Client Organization Systems .....	70
3.8 Construction Project Organization Systems .....	75
3.9 Summary .....	83

<b>4</b>	<b>ORGANIZATIONAL CONFLICT THEORY.....</b>	<b>84</b>
4.1	Introduction.....	84
4.2	Social Conflict .....	84
4.3	Social Conflict and Organizational Boundaries .....	86
4.4	Hostility and Tension in Social Conflict Relationships.....	88
4.5	Social Conflict in Organizational Relationships .....	90
4.5.1	Co-operative Organizational Relationships in Construction.....	91
4.6	Unified Theorem of Social Conflict.....	94
4.7	Definition of Organizational Conflict .....	96
4.8	Classification of Organizational Conflict.....	101
4.8.1	Sources of Organizational Conflict.....	102
4.8.2	Levels of Organizational Conflict.....	103
4.9	Characteristics of Organizational Conflict .....	108
4.10	Summary .....	113
<b>5</b>	<b>INTER-ORGANIZATIONAL CONFLICT THEORY .....</b>	<b>114</b>
5.1	Introduction.....	114
5.2	Inter-organizational Relationships .....	114
5.3	Frameworks for Inter-organizational Analysis.....	117
5.4	Environment as an External Constraining Phenomenon .....	118
5.5	Environment as a Collection of Interacting Social Agencies .....	122
5.5.1	Dimensions of Inter-organizational Exchange .....	124
5.5.2	Mechanisms for Co-ordination between Organizations .....	127
5.6	Environment as a Social System .....	130
5.7	Approaches to Inter-organizational Relations .....	132
5.8	Levels of Analysis for Inter-organizational Relations.....	136
5.8.1	Organizational Level of Analysis.....	137
5.8.2	Inter-organizational Dyad Level of Analysis .....	137
5.8.3	Inter-organizational Network Level of Analysis .....	138
5.9	Inter-organizational Collectivities.....	139
5.10	Inter-organizational Collectivities and Social Conflict .....	146
5.11	Elements of Inter-organizational Interfaces .....	148
5.11.1	Inter-organizational Interfaces .....	151
5.11.2	Inter-organizational Parties .....	153
5.11.3	Inter-organizational Boundary Role Representatives .....	154
5.11.4	Inter-organizational Context .....	155
5.12	Comparative Model of Inter-organizational Conflict.....	156
5.13	Summary .....	161
<b>6</b>	<b>METHODOLOGY AND HYPOTHESIZED MODEL .....</b>	<b>162</b>
6.1	Introduction.....	162
6.2	Construction of Structural Equation Model .....	162
6.3	Operationalization of Constructs.....	163
6.3.1	INTERDEPENDENCE (F <sub>9</sub> ).....	164
6.3.2	STRUCTURAL CONFLICT (F <sub>10</sub> ).....	166
6.3.3	OPERATING CONFLICT (F <sub>11</sub> ) .....	168

6.3.4	CLIENT REPUTE (F <sub>1</sub> ) .....	173
6.3.5	PROFESSIONAL SERVICES (F <sub>2</sub> ).....	177
6.3.6	OUTPUT SECTORS (F <sub>3</sub> ) .....	179
6.3.7	POSITIONAL POWER (F <sub>4</sub> ) .....	182
6.3.8	RELATIVE MATURITY (F <sub>5</sub> ) .....	186
6.3.9	RELATIONAL FAMILIARITY (F <sub>6</sub> ).....	188
6.3.10	ORGANIZATIONAL REPUTE (F <sub>7</sub> ) .....	191
6.3.11	PROFESSIONAL STATUS (F <sub>8</sub> ) .....	195
6.4	Hypothesized Model .....	201
6.5	Formation of Inter-organizational Dyads .....	204
6.6	Data Collection and Analysis .....	208
6.7	Summary .....	213
<b>7</b>	<b>DATA ANALYSIS AND RESULTS .....</b>	<b>215</b>
7.1	Introduction.....	215
7.2	Attributes of Observed Projects and Participants .....	215
7.3	Results of Structural Equation Modelling Analysis .....	216
7.4	Results of Exploratory Case Study Analyses .....	227
7.4.1	Theme 1: Power and Authority .....	231
7.4.1.1	Building Project Profile (BLD05) .....	232
7.4.1.2	Organizational Profiles (BLD05).....	233
7.4.1.3	Building Project Narrative (BLD05).....	238
7.4.2	Theme 2: Familiarity and Trust.....	243
7.4.2.1	Building Project Profile (BLD04) .....	244
7.4.2.2	Organizational Profile (BLD04) .....	246
7.4.2.3	Building Project Narrative (BLD04).....	250
7.4.3	Theme 3: Respectability and Prestigiousness .....	256
7.4.3.1	Building Project Profile (BLD06) .....	257
7.4.3.2	Organizational Profile (BLD06) .....	260
7.4.3.3	Building Project Narrative (BLD06).....	265
7.5	Summary .....	269
<b>8</b>	<b>CONCLUSION AND RECOMMENDATIONS .....</b>	<b>271</b>
8.1	Introduction.....	271
8.2	Theoretical Reflection and Revision .....	271
8.3	Recommendations.....	281
<b>9</b>	<b>REFERENCES .....</b>	<b>285</b>
<b>10</b>	<b>APPENDIX A: ATTITUDE MEASUREMENT SCALES.....</b>	<b>306</b>
10.1	Likert Scale A .....	306
10.2	Likert Scale B .....	307
10.3	Likert Scale C .....	308
<b>11</b>	<b>APPENDIX B: CONSTRUCTION-RELATED PROFESSIONAL SERVICES .....</b>	<b>309</b>
<b>12</b>	<b>APPENDIX C: CI/SFB CLASSIFICATION OF BUILDING TYPES .....</b>	<b>310</b>
<b>13</b>	<b>APPENDIX D: CONSTRUCTION-RELATED OUTPUT SECTORS.....</b>	<b>317</b>
<b>14</b>	<b>APPENDIX E: MODELS OF INTER-ORGANIZATIONAL RELATIONSHIPS .....</b>	<b>318</b>
<b>15</b>	<b>APPENDIX F: MODELS OF CONSTRUCTION PROJECT ORGANIZATIONS.....</b>	<b>330</b>

16	<b>APPENDIX G: PROFESSIONAL STATUS EVALUATION QUESTIONNAIRE.....</b>	<b>338</b>
17	<b>APPENDIX H: EXPLORATORY INTERVIEW PROTOCOL .....</b>	<b>339</b>
18	<b>APPENDIX I: DATASET OF FACTORS AND MEASURED VARIABLES.....</b>	<b>344</b>
19	<b>APPENDIX J: PROFESSIONAL STATUS EVALUATION QUESTIONNAIRE SAMPLE .....</b>	<b>345</b>
20	<b>APPENDIX K: BUILDING PROJECT 1 (BLD01) INTERVIEW TRANSCRIPTS.....</b>	<b>368</b>
20.1	Interview Transcript BLD01-TRAN01 .....	368
20.2	Interview Transcript BLD01-TRAN02 .....	387
20.3	Interview Transcript BLD01-TRAN03 .....	399
21	<b>APPENDIX L: BUILDING PROJECT 2 (BLD02) INTERVIEW TRANSCRIPTS .....</b>	<b>413</b>
21.1	Interview Transcript BLD02-TRAN01 .....	413
21.2	Interview Transcript BLD02-TRAN02 .....	439
21.3	Interview Transcript BLD02-TRAN03 .....	445
22	<b>APPENDIX M: BUILDING PROJECT 3 (BLD03) INTERVIEW TRANSCRIPTS .....</b>	<b>456</b>
22.1	Interview Transcript BLD03-TRAN01 .....	456
22.2	Interview Transcript BLD03-TRAN02 .....	472
22.3	Interview Transcript BLD03-TRAN03 .....	489
23	<b>APPENDIX N: BUILDING PROJECT 4 (BLD04) INTERVIEW TRANSCRIPTS.....</b>	<b>500</b>
23.1	Interview Transcript BLD04-TRAN01 .....	500
23.2	Interview Transcript BLD04-TRAN02 .....	516
23.3	Interview Transcript BLD04-TRAN03 .....	529
23.4	Interview Transcript BLD04-TRAN04 .....	541
23.5	Interview Transcript BLD04-TRAN05 .....	554
24	<b>APPENDIX O: BUILDING PROJECT 5 (BLD05) INTERVIEW TRANSCRIPTS.....</b>	<b>565</b>
24.1	Interview Transcript BLD05-TRAN01 .....	565
24.2	Interview Transcript BLD05-TRAN02 .....	588
24.3	Interview Transcript BLD05-TRAN03 .....	599
24.4	Interview Transcript BLD05-TRAN04 .....	609
25	<b>APPENDIX P: BUILDING PROJECT 6 (BLD06) INTERVIEW TRANSCRIPTS .....</b>	<b>623</b>
25.1	Interview Transcript BLD06-TRAN01 .....	623
25.2	Interview Transcript BLD06-TRAN02 .....	644
25.3	Interview Transcript BLD06-TRAN03 .....	652
25.4	Interview Transcript BLD06-TRAN04 .....	664
25.5	Interview Transcript BLD06-TRAN05 .....	677
26	<b>APPENDIX Q: SEM MODIFICATION PROCEDURE.....</b>	<b>685</b>
26.1.1	EQS SEM Test 2A .....	685
26.1.2	EQS SEM Test 2B .....	685
26.1.3	EQS SEM Test 2C .....	685
26.1.4	EQS SEM Test 2D .....	686
26.1.5	EQS SEM Test 2E .....	686
26.1.6	EQS SEM Test 2F.....	687
26.1.7	EQS SEM Test 2G.....	687
26.1.8	EQS SEM Test 2H.....	688
27	<b>APPENDIX R: EQS SEM OUTPUT FILE PRINTOUT .....</b>	<b>689</b>

## LIST OF ILLUSTRATIONS

Figure 2.1	Value of GDP and Construction Output (£ million) .....	19
Figure 2.2	Percentage Share of Construction Output in GDP .....	19
Figure 2.3	Percentage Share of Direct Labour Output in Construction Output .....	29
Figure 2.4	Social Conflict in the Contracting System .....	40
Figure 2.5	Simplified Model of the Construction Process .....	42
Figure 3.1	Trends in Building Procurement Strategies .....	49
Figure 3.2	Bifurcated Client Classification System .....	72
Figure 3.3	Construction Project Organization Models .....	80
Figure 4.1	Relationship between Levels and Manifestation of Social Conflict .....	107
Figure 4.2	Relationship between Conflict Intensity and Performance .....	111
Figure 5.1	Simple Environmental System .....	143
Figure 5.2	Elements of an Organization-set Model of Inter-organizational Relations .....	145
Figure 5.3	Elements of an Inter-organizational Interface Model .....	150
Figure 5.4	Dynamics at Inter-organizational Interfaces .....	151
Figure 5.5	A Comparative Model of Inter-organizational Conflict .....	159
Figure 6.1	Hypothesized Structural Equation Model of Inter-organizational Conflict in the UK Construction Industry .....	164
Figure 6.2	Path Diagram of a Hypothesized Structural Model of Social Conflict in Construction-related Inter-organizational Collectivities in the UK .....	203
Figure 7.1	Path Diagram of a Hypothesized Structural Equation Model of Social Conflict in Construction-related Inter-organizational Collectivities in the North-eastern Region of England .....	219
Figure 7.2	Path Diagram for the Final Structural Equation Model of Social Conflict in Construction-related Inter-organizational Collectivities in the North-eastern Region of England .....	223
Figure 7.3	Inter-organizational Relationships during Building Project 5 New-build Construction Sub-process (BLD05-NBCSP) .....	234
Figure 7.4	Inter-organizational Relationships during Building Project 4 New-build Construction Sub-process (BLD04-NBCSP) .....	247
Figure 7.5	Inter-organizational Relationships during Building Project 6 New-build Construction Sub-process (BLD06-NBCSP) .....	261
Figure 14.1	Inter-organizational Relationships during Building Project 1 New-build Design Sub-process (BLD01-NBDSP) .....	318
Figure 14.2	Inter-organizational Relationships during Building Project 1 New-build Construction Sub-process (BLD01-NBCSP) .....	319
Figure 14.3	Inter-organizational Relationships during Building Project 1 Fit-out Design Sub-process (BLD01-FODSP) .....	320
Figure 14.4	Inter-organizational Relationships during Building Project 1 Fit-out Construction Sub-process (BLD01-FOCSP) .....	321
Figure 14.5	Inter-organizational Relationships during Building Project 2 New-build Design Sub-process (BLD02-NBDSP) .....	322
Figure 14.6	Inter-organizational Relationships during Building Project 2 New-build Construction Sub-process (BLD02-NBCSP) .....	323

Figure 14.7	Inter-organizational Relationships during Building Project 2 Fit-out Design Sub-process (BLD02-FODSP) .....	324
Figure 14.8	Inter-organizational Relationships during Building Project 2 Fit-out Construction Sub-process (BLD02-FOCSP) .....	325
Figure 14.9	Inter-organizational Relationships during Building Project 3 New-build Construction Sub-process (BLD03-NBCSP) .....	326
Figure 14.10	Inter-organizational Relationships during Building Project 4 New-build Construction Sub-process (BLD04-NBCSP) .....	327
Figure 14.11	Inter-organizational Relationships during Building Project 5 New-build Construction Sub-process (BLD05-NBCSP) .....	328
Figure 14.12	Inter-organizational Relationships during Building Project 6 New-build Construction Sub-process (BLD06-NBCSP) .....	329
Figure 15.1	Component Organizations during Building Project 1 New-build Design Sub-process (BLD01-NBDSP) .....	330
Figure 15.2	Component Organizations during Building Project 1 New-build Construction Sub-process (BLD01-NBCSP) .....	331
Figure 15.3	Component Organizations during Building Project 2 New-build Design Sub-process (BLD02-NBDSP) .....	332
Figure 15.4	Component Organizations during Building Project 2 New-build Construction Sub-process (BLD02-NBCSP) .....	333
Figure 15.5	Component Organizations during Building Project 3 New-build Construction Sub-process (BLD03-NBCSP) .....	334
Figure 15.6	Component Organizations during Building Project 4 New-build Construction Sub-process (BLD04-NBCSP) .....	335
Figure 15.7	Component Organizations during Building Project 5 New-build Construction Sub-process (BLD05-NBCSP) .....	336
Figure 15.8	Component Organizations during Building Project 6 New-build Construction Sub-process (BLD06-NBCSP) .....	337
Figure 16.1	Professional Status Evaluation Questionnaire .....	338
Figure 19.1	Professional Status Evaluation Questionnaire for BLD01-ORG03-REP01 .....	345
Figure 19.2	Professional Status Evaluation Questionnaire for BLD01-ORG04-REP01 .....	346
Figure 19.3	Professional Status Evaluation Questionnaire for BLD01-ORG05-REP01 .....	347
Figure 19.4	Professional Status Evaluation Questionnaire for BLD02-ORG03-REP01 .....	348
Figure 19.5	Professional Status Evaluation Questionnaire for BLD02-ORG04-REP01 .....	349
Figure 19.6	Professional Status Evaluation Questionnaire for BLD02-ORG05-REP01 .....	350
Figure 19.7	Professional Status Evaluation Questionnaire for BLD03-ORG05-REP01 .....	351
Figure 19.8	Professional Status Evaluation Questionnaire for BLD03-ORG06-REP01 .....	352
Figure 19.9	Professional Status Evaluation Questionnaire for BLD03-ORG07-REP01 .....	353
Figure 19.10	Professional Status Evaluation Questionnaire for BLD04-ORG02-REP01 .....	354
Figure 19.11	Professional Status Evaluation Questionnaire for BLD04-ORG03-REP01 .....	355
Figure 19.12	Professional Status Evaluation Questionnaire for BLD04-ORG04-REP01 .....	356
Figure 19.13	Professional Status Evaluation Questionnaire for BLD04-ORG04-REP02 .....	357
Figure 19.14	Professional Status Evaluation Questionnaire for BLD04-ORG05-REP01 .....	358
Figure 19.15	Professional Status Evaluation Questionnaire for BLD05-ORG02-REP01 .....	359
Figure 19.16	Professional Status Evaluation Questionnaire for BLD05-ORG03-REP01 .....	360

Figure 19.17	Professional Status Evaluation Questionnaire for BLD05-ORG04-REP01.....	361
Figure 19.18	Professional Status Evaluation Questionnaire for BLD05-ORG05-REP01.....	362
Figure 19.19	Professional Status Evaluation Questionnaire for BLD06-ORG02-REP01.....	363
Figure 19.20	Professional Status Evaluation Questionnaire for BLD06-ORG03-REP01.....	364
Figure 19.21	Professional Status Evaluation Questionnaire for BLD06-ORG04-REP01.....	365
Figure 19.22	Professional Status Evaluation Questionnaire for BLD06-ORG05-REP01.....	366
Figure 19.23	Professional Status Evaluation Questionnaire for BLD06-ORG06-REP01.....	367
Figure 27.1	Final EQS SEM Output File Printout (Page 1).....	689
Figure 27.2	Final EQS SEM Output File Printout (Page 2).....	690
Figure 27.3	Final EQS SEM Output File Printout (Page 3).....	691
Figure 27.4	Final EQS SEM Output File Printout (Page 4).....	692
Figure 27.5	Final EQS SEM Output File Printout (Page 5).....	693
Figure 27.6	Final EQS SEM Output File Printout (Page 6).....	694
Figure 27.7	Final EQS SEM Output File Printout (Page 7).....	695
Figure 27.8	Final EQS SEM Output File Printout (Page 8).....	696
Figure 27.9	Final EQS SEM Output File Printout (Page 9).....	697
Figure 27.10	Final EQS SEM Output File Printout (Page 10).....	698
Figure 27.11	Final EQS SEM Output File Printout (Page 11).....	699
Figure 27.12	Final EQS SEM Output File Printout (Page 12).....	700
Figure 27.13	Final EQS SEM Output File Printout (Page 13).....	701
Figure 27.14	Final EQS SEM Output File Printout (Page 14).....	702
Figure 27.15	Final EQS SEM Output File Printout (Page 15).....	703
Figure 27.16	Final EQS SEM Output File Printout (Page 16).....	704
Figure 27.17	Final EQS SEM Output File Printout (Page 17).....	705
Figure 27.18	Final EQS SEM Output File Printout (Page 18).....	706
Figure 27.19	Final EQS SEM Output File Printout (Page 19).....	707



## LIST OF TABLES

Table 2.1	Value of Gross Domestic Product and Construction Output (£ million) .....	18
Table 2.2	Comparison between Building and Civil Engineering Industries .....	27
Table 2.3	Value of Direct Labour Output and Construction Output (£ million).....	30
Table 3.1	Client-related Attributes and Sub-attributes that Influence Project Consultants' Performance .....	52
Table 3.2	Type of Client Organization .....	53
Table 3.3	Type of Construction Project.....	53
Table 3.4	Level of Client Organization Experience.....	54
Table 5.1	Categories of Inclusive Context.....	126
Table 5.2	Approaches to Inter-organizational Relations and Representative Variables .....	133
Table 7.1	Truncated Dataset of Inter-organizational Conflict Factors.....	217
Table 7.2	Building Project 5 (BLD05) Coding Framework.....	232
Table 7.3	Building Project 4 (BLD04) Coding Framework.....	245
Table 7.4	Building Project 6 (BLD06) Coding Framework.....	258
Table 10.1	Likert Scale A .....	307
Table 10.2	Likert Scale B .....	307
Table 10.3	Likert Scale C .....	308
Table 11.1	Professional Services and Corresponding Variables.....	309
Table 12.1	CI/SfB 1: Utilities and Civil Engineering Facilities .....	310
Table 12.2	CI/SfB 2: Industrial Facilities .....	311
Table 12.3	CI/SfB 3: Administrative, Commercial and Protective Facilities .....	311
Table 12.4	CI/SfB 4: Health and Welfare Facilities .....	312
Table 12.5	CI/SfB 5: Recreational Facilities .....	313
Table 12.6	CI/SfB 6: Religious Facilities .....	313
Table 12.7	CI/SfB 7: Educational, Scientific and Information Facilities .....	314
Table 12.8	CI/SfB 8: Residential Facilities .....	315
Table 12.9	CI/SfB 9: Common Facilities.....	315
Table 12.10	CI/SfB 10: Rehabilitation and Conversion .....	316
Table 13.1	Output Sectors and Corresponding Variables .....	317
Table 17.1	Semi-structured Interview Protocol .....	339
Table 18.1	Dataset of Inter-organizational Conflict Factors and Measured Variables .....	344

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## **ABSTRACT**

Irrespective of the groundswell of interest in construction industry conflict during the last two decades, there has been comparatively little research conducted that attempts to investigate the association between social conflict and ineffective construction industry inter-organizational relationships. This is despite the growing recognition that conditions conducive to effective social relationships between interdependent organizations contribute towards improved industrial productivity. This doctoral thesis contributes to the existing literature and empirical database on construction industry conflict by reporting the findings of a research project designed to explore the comparative organizational properties that encourage interdependence and the emergence of inter-organizational conflict during the construction process. The investigation builds upon and moderates an earlier comparative analysis of inter-organizational conflict by Molnar and Rogers (1979) in order to formulate a novel structural equation model. It includes as its database six case studies of medium- to large-scale new-build construction projects, selected from the north-eastern region of England, from which the networks of social relationships within the collectivities of construction-related organizations were examined from the perspective of the exogenous and endogenous comparative organizational properties. Primary data were collected during semi-structured interviews with twenty-three boundary role representatives of the twelve construction-related organizations responsible for the design and construction of the observed projects. The resultant structural equation model provides insight into the occurrence of inter-organizational conflict within the UK construction industry, in addition to explaining the key factors that influence the occurrence of ineffective construction industry inter-organizational relationships. In essence, this doctoral investigation has demonstrated the potential ability to predict the likelihood that social conflict will arise between interdependent construction-related organizations. Furthermore, it has paved the way for additional studies to be conducted to further understand the complex and intriguing aspects of construction industry inter-organizational relationships by presenting an accurately specified theoretical framework and an appropriately grounded methodological approach.

# 1 INTRODUCTION

## 1.1 BACKGROUND TO THE STUDY

Conflict, in its many forms, is endemic to individuals, groups and organizations within the United Kingdom (UK) construction industry. The intensity of arbitration and litigation within the industry is a grim reminder of the destructive consequence of dysfunctional social conflict and the industry's inability to effectively control its presence. Despite universal efforts to promote the concept of partnering as a means of actually reducing social conflict and improving construction-related performance, Cheung and Suen (2002) have stated that the level of construction disputes reported over the final decade of the last millennium increased dramatically. According to Bresnen and Marshall (2000), this may well be the result of the industry's failure to critically confront some of the assumptions that underpin the more prescriptive and positive accounts of partnering, including the unmitigated integration of the supply chain, and the purported benefits that it supposedly incites.

The Latham (1994) review has cited the lack of trust and insufficient money as the factors that are choking the industry through chronic conflict. The 'Latham Report' has portrayed conflict as an undesirable *social* phenomenon which should be totally eliminated from the construction process in order to secure a better deal for the UK construction industry's clients. To attain his idealized goal, Latham recommended that the industry develop an efficient system for effective project communication and co-ordination, the intention being to minimize the incidence of reported disputes and claims. However, as Heath and his associates (Heath and Berry, 1995; Heath *et al.*, 1994) and Baden-Hellard (1992; 1995) have suggested, the incidence of adversarial activity is not founded upon ineffective project communication strategies but is the direct result of the flawed process of the contracting system.

Ball (1980; 1988) has argued that the contracting system and its natural degree of uncertainty stimulates construction-related organizations to function as capitalist enterprises in terms of profit maximization, i.e. to strategically invest money in order to secure a profit. Bowley (1966) and Hillebrandt (1985; 1988) have examined the relationship that exists between commodity production and commodity exchange and

subsequently differentiated building procurement into two distinct approaches, viz. speculative building and building to contract. Ball has indicated that the majority of work undertaken in the UK construction industry (with the exception of speculative house-building) is by contractual arrangement, and as a result, most companies can be classified as contractors. Such contractual dominance generates and exacerbates the structural and operational uncertainties and conflicts that are ever-present within the contracting system. It also contributes towards the occurrence of protracted and ineffective inter-organizational relationships between capitalist construction-related organizations during the design and construction sub-processes of building projects.

Encapsulated within the framework of the contracting system is the perspective that the construction process is composed of a series of discrete projects or sub-processes (Walker, 1996; Walker and Hughes, 1984;1987). This division of work reflects the unique organizational structure of the construction industry and the uncertainty that is engendered by building to contract, i.e. the successful generation of work and its subsequent impact upon potential profitability (Cherns and Bryant, 1984; Flanagan and Norman, 1993; Newcombe, 1996; Winch, 1987;1989). Competition within the industry tends to have a cumulative effect upon the degree of fragmentation, and consequently, the number of inter-organizational interfaces that exist during the construction sub-processes (Ive, 1995; Lewis and Cheetham, 1993; Morris, 1973).

Extensive co-ordination problems tend to develop as a result of the contracting system, predominantly at the construction client ↔ design consultant ↔ primary contractor ↔ secondary contractor inter-organizational interfaces. Both Ball (1980; 1988) and Winch (1985; 1987; 1989) have suggested that these interfaces or social linkages are the products of historical conflicts *between* social groups. Cherns and Bryant (1984) extended this concept when they remarked that unresolved conflicts *within* the client organization can contribute to conflicts and uncertainties concerning design variations for the design consultants and delays and fabrication difficulties during the construction phase for the contractors. From this perspective it would appear that conflict has the potential to move from one social group (or location) to another during the construction process. Langford and his colleagues (1992) have further remarked that conflict *between* contracting companies is an inevitable by-product of the inter-organizational activity that constantly occurs within the industry.

Co-operative inter-organizational relationships and construction-related success are essentially symbiotic in nature (Holmen *et al.*, 2002). Many authors have advocated the construction industry's need to redefine its inter-organizational relationships as a means of significantly reducing one or more of its inherent operational and structural problems (Egan, 1998; Latham, 1994; Pokora and Hastings, 1995; Winch, 1987). Very little, if any, empirical research has been conducted that examines the nature of construction industry inter-organizational relationships (CIORs) and their impact upon successful project-related outcomes (Holmen *et al.*, 2002). This study intends to address this deficit by exploring the comparative organizational variables that influence the occurrence of social conflict during inter-organizational relationships within the contextual setting of the UK construction industry.

## 1.2 CURRENT STATE OF KNOWLEDGE

Kennedy *et al.* (1997) have stated that research into the nature of conflict *between* contracting parties in the construction industry has to rely upon insights from various sources, but fail to offer any meaningful advice as to the potential location of such profound knowledge. This is most disappointing, as the key to successful conflict management, according to Awakul and Ogunlana (2002), is a deeper and broader appreciation of the varying aspects of conflict, including *how* and *why* it arises. The ability of organizations to manage conflict effectively is therefore dependent upon their recognition of its causes and effects (Whitfield, 1994).

During the past decade or so, many studies have been published which purport to explain the causes, effects and management of construction-related conflict. Fenn and his contemporaries (1997) have argued that the paucity of research in this field is taxonomically confused, as *conflict* and *dispute* are two distinct notions. They contend that this body of knowledge can be categorized into two explicit groups. Firstly, studies which have considered conflict and dispute to be pathological states, and as a result, have tended to investigate their causes and effects. Examples of research conducted within this category include Booker and Lavers (1997), Clegg (1992), Conlin *et al.* (1996), Diekmann and Girard (1995), Doree (1994), Fenn and Speck (1995), Griffith (1984), Heath *et al.* (1995; 1994), Kennedy *et al.* (1997),

Kumaraswamy (1996; 1997), and Sommerville and Stocks (1993). Secondly, studies which have acknowledged the presence of conflict, but have tended to focus upon its behaviour and management. Examples of research conducted within this category include Awakul and Ogunlana (2002), Gardiner and Simmons (1992b; 1992a; 1995), Langford *et al.* (1992), Lavers (1992), Loosemore *et al.* (1994; 1999b; 1999a; 1994; 2000), Pretorius and Taylor (1986) and Smith (1992). Fenn *et al.* (1997) have also declared that their unique taxonomy enables researchers to consider the focus of their intended concern at a relatively early stage in its theoretical and methodological development; thus partially resolving Kennedy *et al.*'s omission. Furthermore, they contend that the efficacy of conflict and dispute management within the construction industry would be facilitated by the stringent application of their novel taxonomical principles, but fail to succinctly explain the practical application of their supposition.

When appraising the literature that abounds within Fenn *et al.*'s conflict behaviour and management category, it would appear that very little empirical evidence exists that effectively addresses Latham's (1994) and Holmen *et al.*'s (2002) urgent appeal for research which captures an understanding of the diversity of inter-organizational relationships that exist within the construction industry. The gravity of Holmen and her companions' concern is expressed in the following statement:

. . . there is a need for investigating how single firms in the construction industry may be involved in a variety of different types of relationships, how this situation develops over time, and what are the drivers beyond this change. Then we can use the new insights to improve the performance of [the] construction industry and the organisational forms within it. In conclusion, there is much to gain from understanding inter-organisational relationships in the construction industry.

(Holmen *et al.*, 2002: 717)

Over the years a comparatively small number of studies have been published which attempt to investigate the phenomenon of inter-organizational relationships. These studies have been conducted within a variety of disciplines and, as a result, are not confined to the context of the construction industry. According to Holmen *et al.*, the results of these investigations are, at times, a little confusing, as inter-organizational relationships are identified and examined on the basis of different criteria. A lack of

consensus among researchers is therefore apparent, as different researchers have focused on different categories of factors when examining inter-organizational relationships. Holmen and her associates have claimed that one possible explanation for this apparent confusion is the unfocused approach which has occurred as a result of the diverse theoretical streams that have contributed to this field of investigation, which includes transaction cost economics and supply chain management.

One study which Holmen *et al.* would appear to have overlooked is Molnar and Rogers' (1979) investigation of natural resource agencies in the United States of America (USA). Despite being conducted within a different contextual setting, Molnar and Rogers' study has attempted to define the nature of inter-organizational relationships and the comparative factors that determine the manifestation of inter-organizational conflict. Their study, which is conceptually mature in terms of its understanding of the factors which influence inter-organizational relationships, in general, has many theoretical and methodological elements that could be transferred to a similar study conducted within the UK construction industry.

Although previous research into social conflict between organizations is scarce, Molnar and Rogers' comparative analysis is a most notable exception. They have suggested that amongst the many factors that affect successful inter-organizational relationships are the similarities and differences of the interacting social units on certain attributes or dimensions. Marrett (1971) has stated that these comparative properties represent the fit, congruence and compatibility of the interface that exists between the united organizations. According to Molnar and Rogers, chronic inter-organizational disagreements tend to be generated when administrators or boundary role representatives are unable to adequately reconcile contrasting organizational structures and functions over a sustained period. Furthermore, they have indicated that social conflicts may actually coerce organizations to reallocate their resources and authority, thus reflecting the organizations' tendencies to realign their inter-organizational linkages during times of crisis. Molnar and Rogers present the results of their investigation as a recursive path model of inter-organizational conflict which incorporates key aspects of the organizational interface. Their resulting descriptive model enables conflict and relationships between organizations to be understood on the basis of comparative organizational properties.



### 1.3 PURPOSE STATEMENT

Consideration of the foregoing preliminary sections reveals there is a distinct need for undertaking a focused investigation of construction industry inter-organizational relationships. Central to the intention of this study will be the development of an understanding regarding the extent to which comparative organizational variables influence the occurrence of ineffective inter-organizational relationships. This being the case, the phenomenon explored during this investigation will be social conflict.

Social conflict can be tentatively defined as tension between two or more social agencies, i.e. individuals, groups or organizations, which arises from incompatibility between actual or desired responses. It is acknowledged that this research project will also involve the requirement to explore the relationships that exist between comparative organizational variables and the extent to which they elicit the mutual interdependence of conjoined construction-related organizations.

### 1.4 RESEARCH AIM AND OBJECTIVES

The aim of this research project is to incorporate the key aspects of comparative organizational variables and interdependence of construction-related organizations into a model that explains inter-organizational conflict during the construction sub-processes. The structural model will be constructed from variables identified from the literature which are reputed to influence interdependent inter-organizational relationships and the manifestation of inter-organizational conflict. The model will rely upon two fundamental propositions. Firstly, that interdependence has a causal origin within the comparative organizational variables; and secondly, social conflict is a function of interdependence. Accordingly, the objectives of the research project will be to develop the hypothesized model and to evaluate its applicability within the confines of a predetermined contextual setting of the UK construction industry.

## 1.5 SCOPE, DELIMITATION AND SIGNIFICANCE OF THE STUDY

In an attempt to acknowledge the conventional research-related constraints and the second objective of this study, it was decided to confine this investigation of the inter-organizational conflict that exists among construction-related organizations to those which operate within the north-eastern region of England during the design and construction sub-processes of six new-build projects. Network membership, which refers to the particular field or set of organizations in which an inter-organizational relationship occurs (Evan, 1965; Warren, 1967), will be considered during this study as the contextual variable that may affect interdependence and conflictful relations.

The inter-organizational network is a context in which interaction occurs, and it may influence the nature and intensity of relations between organizations (Molnar and Rogers, 1979). The network membership criterion for this study will be that the regional or head-offices of the participating construction-related organizations are located within a forty-mile radius of Newcastle-upon-Tyne. This delimitation will similarly apply to the six case study building projects that will be investigated.

The network membership control variable will therefore be used to examine bivariate relationships in the hypothesized comparative model of inter-organizational conflict when the effect of the inter-organizational context is removed. Hence, the results of this study will not be generalizable to all geographic regions of the construction industry's operations in the UK, as the intended purposive sampling procedure will decrease the generalizability of the findings. Such a broad approach to construction industry inter-organizational relationship analysis lies outside the scope of this study.

A focused study of comparative organizational factors, interdependence and conflict, and their influence upon construction industry inter-organizational relationships, is important for several reasons. Firstly, understanding which comparative factors are more or less important in terms of inter-organizational conflict and interdependence will enable construction clients and administrators to determine effective strategies for controlling dysfunctional conflict and promoting productive inter-organizational relationships during the construction sub-processes of building projects. Secondly, construction clients will possess the knowledge and ability to select and appoint

construction-related organizations, based on an understanding of the organizational factors that influence effective inter-organizational relationships, which will ensure their building projects are procured efficiently and effectively. And thirdly, scholars will be able to understand construction industry inter-organizational relationships in much more detail, having in their possession a structural model that is capable of predicting the likelihood of social conflict arising between two or more construction-related organizations during the construction sub-processes of building projects.

## 1.6 RESEARCH DESIGN STRATEGY

Central to epistemology is the frequently occurring question of whether the social world, such as the construction industry in the UK, can and should be observed and analysed according to the same principles, procedures and philosophies as the natural sciences, such as biology, physics and chemistry (Bryman, 2001; Easterby-Smith *et al.*, 2002; Gill and Johnson, 2002). Clarification of the relative doctrinal position concerning the importance of replicating the natural sciences tends to be invariably associated with an epistemological position known as *positivism* (Bryman, 2001; Easterby-Smith *et al.*, 2002; Gill and Johnson, 2002).

Positivism, according to Bryman, is: “an epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and beyond” (Bryman, 2001: 11). The positivist position typically involves deductive reasoning in which *a priori* concepts, theories and hypotheses are initially proposed and subsequently tested (Creswell, 2003). In general terms, the positivist approach is usually associated with empirical data that are quantitative as opposed to qualitative in nature (De Vaus, 2002).

An alternative approach to the positivist stance is *phenomenology* or *interpretivism*. The philosophy of phenomenology is concerned with the question of how individuals make sense of the natural/social world around them and how theorists should exclude their own preconceptions of the world (Bryman, 2001). The interpretivist position is the opposite of the positivist position in that it typically involves: “moving from the ‘plane’ of observation of the empirical world to the construction of explanation and

theories about what has been observed” (Gill and Johnson, 2002: 40). Ergo it has a tendency to be associated with data of a qualitative nature (Bryman, 1995;2001; Creswell, 2003; Gill and Johnson, 2002).

During the mid-to-late 1990s, there was a certain amount of friendly-debate within the UK construction management academic community regarding the appropriate utilization of positivist or interpretivist approaches to research design strategies. Seymour and his colleagues (Seymour *et al.*, 1997; Seymour and Rooke, 1995; Seymour *et al.*, 1996) appeared to be the prime instigators of this methodological debate. They argued that in the vast majority of cases, construction management research tends to be closely-associated with the social sciences and that it should accordingly acknowledge one of the major qualitative research methodologies in the social sciences as opposed to naturalistic or quantitative approaches. In defence, a number of counter arguments were presented which supported quantitative research methodologies (see Chau *et al.*, 1998; Dainty *et al.*, 1997; Runeson, 1997b;a). These articles cited the abilities of quantitative research methodologies to effectively reduce ineffectual research design strategies and their associated subjective outcomes.

Bryman (2001) and Easterby-Smith *et al.* (2002) have explained that research design strategies are the frameworks that are established for the organization of research activity, including the collection and analysis of primary and secondary data, in the most appropriate ways in order to achieve the stipulated research-related goals. As there are clearly many choices to make when establishing a research design strategy, an awareness of the epistemological positions and their resulting implications upon research methods can at least ensure that the different components of the anticipated research design are consistent with one another and the intended research-related goals (Easterby-Smith *et al.*, 2002).

Easterby-Smith and his contemporaries have argued that the dichotomous distinction between the use of positivist and social constructionist approaches is over-simplistic for two reasons. Firstly, the majority of management-related research tends to adopt a *middle-ground* stance; thus the fixed positivist ↔ phenomenological polarization of epistemological concern is unrealistic. Secondly, conformation to the conviction that research design strategies should be founded upon a single research paradigm is

misguided. This is because, according to Creswell (2003), who simplified Crotty's (1998) fundamental elements of inquiry regarding the decisions that need to be taken during the research design process, there are three levels of concern. These include the *philosophical* level, i.e. what are the knowledge claims being made by the theorist; the *social* level, i.e. what strategies of inquiry will inform the procedures; and the *technical* level, i.e. what methods of data collection and analysis will be used.

The epistemological stance from which this Ph.D. study will therefore be conducted will be firmly rooted within the positivist tradition, but at the same time, branch out and acknowledge the interpretivist perspective; thus adopting a triangulated or mixed method approach. This is because, according to Bryman's (2001) dimensions of social research processes, the central intention of this study is to analyse the causal connections between related variables, following the acceptance and application of existing theories, whilst simultaneously attempting to gain an understanding of behaviour and the meaning of that behaviour in its specific social context in order to qualify the theoretical specification of the variables and their causal connections.

## 1.7 OVERVIEW OF THE THESIS

The current chapter, as indicated by its sub-headings, fulfils a number of discrete purposes that involve the establishment of the research-related goals. The first is to introduce the research topic, summarize the current state of knowledge and thus demonstrate the need for the study. This is followed by the purpose statement, which outlines the central intent of the study, and the research aim and objectives. Finally, the scope, delimitation and significance of the research project are outlined. They draw parameters around the research by clarifying the concepts that are analysed, narrowing the scope of the study, suggesting potential weaknesses and summarizing the importance of the outcomes for different construction-related audiences.

Four literature review chapters follow this introductory chapter. These present detailed analyses of the theories that underpin the study, including evaluations of construction industry, construction organization, organizational conflict and inter-

organizational conflict theories. The aims of the literature review chapters are to outline the scope of the inquiry, relate the study to the larger on-going dialogue and identify the missing links, and to suggest ways of extending prior knowledge. In essence, these four chapters will formulate a theoretical framework from which the importance of the study will be established, as well as a benchmark for comparing the results of the investigation with other findings.

The theories presented in the four literature review chapters are exploited in Chapter 6. In this chapter the concepts that theoretically underpin the construction of the eleven comparative organizational properties that are investigated in the current study are described and evaluated in significant detail. Their operationalization is given with appropriate examples. Towards the end of Chapter 6, Molnar and Rogers' (1979) comparative model is reformulated using constructs specified from the literature and considered appropriate to the contextual setting of the UK construction industry. The specification of the hypothesized relationships between the resulting structural model's various independent and dependent variables are presented. The chapter concludes with an account of the methodological strategy and data gathering procedures that are utilized during this study.

Chapter 7 reports on the collection and analysis of the data gathered from the study. As the study adopts a mixed method approach to the collection of data, as a means of gaining a deeper and richer understanding of the issues surrounding the occurrence of ineffective construction industry inter-organizational relationships, the chapter is divided into two distinct yet inter-related sections. The first section reports the outcomes of the structural equation modelling exercise of the hypothesized model and the second analyses the dominant themes reported during the in-depth qualitative interviews with the administrators of the six case study building projects investigated during this research project. Triangulation of the findings enables several strong inter-relationships between the comparative organizational variables to be identified, which are then evaluated during the concluding chapter.

In the final chapter, Chapter 8, the results of the data analysis exercises are discussed and interpreted, the original research aim and objectives are reconsidered in the light of the findings, and the hypothesized model and its constructs are evaluated in terms

of their theoretical specification. Also, the success of the study and the model to interpret dysfunctional construction industry inter-organizational relationships are considered, along with an outline of the recommendations for further investigation. The resulting implications of the findings for future policy and practice within the context of the UK construction industry are also considered.

## **2 CONSTRUCTION INDUSTRY THEORY**

### **2.1 INTRODUCTION**

Of all the industries in the UK, construction has one of the worst records associated with inter-organizational conflict. High production costs, poor quality products, chaotic and dangerous working practices are commonly believed to be synonymous with the discordant nature of construction-related work. Over the last decade or so, the UK construction industry has substantially restructured itself in an attempt to mitigate its inherent problems. But within the context of such change, it is virtually impossible to completely remove all traces of conflict. As this research project is primarily concerned with the study of inter-organizational conflict in the UK construction industry, or to be more precise, conflict between the construction-related organizations that are usually bound by the contracting system, it is necessary to develop an appreciation of social conflict within the context of the fragmented construction process. This chapter therefore aims to place construction conflict within its proper setting by describing the nature of the social relationships that typically exist between those construction-related organizations that actively take part in the construction process. Although most readers will already have developed a comprehensive systems-based knowledge of the construction industry and its work-related operations, the objective of this chapter is to cultivate a clear understanding of construction conflict in terms of the social nature of the UK construction industry and the highly fragmented construction process.

### **2.2 UNITED KINGDOM CONSTRUCTION INDUSTRY**

The construction industry is arguably one of the UK's largest and most disparate manufacturing-based industries. Through its manufactured products and professional services, the construction industry is ultimately responsible for the creation of the built environment. Cultural and religious values, status and prestige, fashion and mood are all uniquely expressed through the physical form of buildings. People as they live, work and play are constantly interacting, both psychologically and physically, with historic and contemporary buildings. But whatever their aesthetics, churches, houses, schools, shops, offices, factories and other buildings remain an



enduring testimony of the professional skills and technical expertise of the large and varied workforce that is employed within the UK construction industry.

Buildings undeniably provide society with the necessary infrastructure for modern-day living. They provide appropriate shelter and adequate security from the natural environment for the vast majority of people and organizations who collectively form society. Buildings also provide bespoke accommodation for the many private-sector business organizations that are responsible for the efficient and effective production and distribution of capital goods in the national and global economies. In addition to these direct benefits, however, the construction of buildings also serves to enhance the economic value of land and the material resources that are commonly used during the creation of the built environment.

When compared with other manufacturing-based industries, the construction industry has had the biggest impact on the natural environment. This is because its products are usually large, technically complex, spatially fixed and extremely long-lasting. Moreover, inside these long-lasting products, other capital goods are sometimes created that similarly effect the natural environment. Because its products are therefore not always manufactured for their own sake, the construction industry can generally be regarded as an *investment-goods* industry. This is because it is able to influence, both directly and indirectly, the flow of goods and services that are produced in the economy. In addition to this perspective, the construction industry's products can also be regarded as *investment* or *capital goods*. This can be explained by the fact that the cost of goods produced by the construction industry is usually high in relation to the income of the purchaser (i.e. the construction industry client). But irrespective of the correctness of these viewpoints, it is clear that the many and varied products that are manufactured by the UK construction industry are directly related to the nation's overall economic well-being.

In order to gain a general appreciation of the relative importance of the UK construction industry to the national and European economies, it is first of all necessary to consider some fundamental statistical data. For instance, according to The Statistical Office of the European Community (Eurostat), during the first quarter of 2004, the UK construction industry was the second largest in the European Union

(EU), where it contributed 18.3% of the total value of combined output of work (when compared with statistical figures for the fourth quarter of 2003). It was only surpassed by the German construction industry which contributed 21.6% of the total value of combined output of construction-related work in the EU (Bautier, 2004).

The size of the UK construction industry and the vital role that it plays in relation to the national and pan-European economies can be analysed and quantified in several different ways. Many well-known authors have attempted to measure and express this information for research and analytical purposes. Although they have generally produced precise, interesting, seminal work, which has contributed significantly to the body of knowledge concerning the nature and size of the UK construction industry, they have unfortunately neglected to assimilate and organize this information into the following simplified classification scheme.

1. **Comparative physical indicators** – the number of employees or firms operating within the construction industry measured against the number of employees or firms operating within the other industrial sectors of the market economy.
2. **Comparative economic indicators** – the total value of the combined output of the construction industry measured against specific macroeconomic indicators.

### 2.2.1 Comparative Physical Indicators

In his highly acclaimed industrial report, which will be discussed in greater detail in Section 3.5.1 Latham Report on page 55 of this thesis, Sir Michael Latham has indicated that the UK construction industry contains approximately 200,000 contracting firms, of which 12,000 are firms employing more than seven people and 95,000 are private individuals or one person firms (1994: 7). The Royal Academy of Engineering (1996) and Sir John Egan (1998) both agree with Latham by declaring that construction is an extremely labour-intensive industry, as it employs around 1.4 million people. Nick Raynsford, prior Minister for Housing and Planning, has also reported on the scale of the UK construction industry during a fairly recent House of Commons debate. In the debate he testified that the construction industry currently employs nearly 1.7 million people (provided all construction-related professionals

and consultants are included), and that it consists of approximately 160,000 companies (Raynsford, 2000). He then continued to report that current employment figures show that the industry employs in the region of 1.46 million employees, which roughly equates to one in ten of the UK working population. Three years later this figure was revised by the Department of Trade and Industry (DTI). It stated that 1.41 million construction operatives were employed during the year 2000 and 1.54 million operatives were employed by the end of 2002 (Folwell, 2003: 52-5).

In addition to this high level of direct or *primary* employment, a large number of people are employed with companies that manufacture construction-related materials, components, industrial plant and vehicles. This tier of indirect or *secondary* employment is therefore dependent upon a relatively stable level of employment in the direct or primary tier. Harvey and Ashworth (1993) have revealed that the construction industry is overall responsible for a reasonable percentage of the total UK employed labour force, but warn that this figure can widely fluctuate and may rise by almost 25% during periods of sustained construction activity, as it is dependent upon macroeconomic conditions.

### 2.2.2 Comparative Economic Indicators

Latham (1994) has continued to sustain his rationale concerning the UK construction industry's physical size by citing statistical figures that were published by the Department of the Environment (DoE). They have estimated that the value of the combined output from the construction industry in 1993 was £46.3 billion, which represents almost 9% of the *Gross Domestic Product* (GDP)<sup>1</sup>. As will be seen very shortly, the DoE's estimate was a little inaccurate.

The Department of Trade and Industry (DTI) has subsequently published statistical data which illustrates the current value of the combined output from the construction industry in relation to the GDP. The secondary data published by the DTI originated

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<sup>1</sup> Gross Domestic Product (GDP) is the sum total of all final goods and services valued at market prices produced in the UK during a year, equal to consumption plus investment, government purchases and net exports (Mabry and Ulbrich, 1989: 287).

from a report released by the Office for National Statistics (ONS). A summary of the data published by the DTI (Folwell, 2003) and Office for National Statistics (Cook, 2003) for the last decade is illustrated below in Table 2.1 on page 18 and is graphically displayed in Figure 2.1 and Figure 2.2 on page 19.

From this data it can be determined that the value of the combined construction output during most of the nineties actually decreased from around £52 billion in 1992, which in relative terms represented approximately 8.6% of the GDP, to almost £65 billion in 2002, which in relative terms represented nearly 6.6% of the GDP. Although during this 10-year period the value of the combined construction output in relation to the GDP stabilized to around 7%, it continues to remain the largest UK manufacturing-based industry with an average annual combined output of £56 billion.

The empirically-based results gained from this statistical analysis correspond with Hillebrandt's definitive work on the economic theory of the construction industry. During her undertaking, she has affirmed the view that: "The very size of the construction industry means that it is of importance to the economy" (Hillebrandt, 1988: 4). Further evidence of construction's size and associated vital role in the economy is the significant contribution that it makes to investment measured by *gross fixed capital formation* (Ball, 1988; Fisher, 1993; Harvey and Ashworth, 1993; Hillebrandt, 1985;1988). This is the extent to which the output of the construction industry (excluding repair and maintenance work) contributes towards the formation of *fixed capital investment*, e.g. buildings, bridges, ships, vehicles, aircraft and industrial plant. Hillebrandt and Harvey and Ashworth have once again confirmed this proposition by suggesting that the construction industry is responsible for approximately 50% of the fixed capital investment in the UK.

## 2.3 CONSTRUCTION INDUSTRY AND THE UNITED KINGDOM ECONOMY

Since the Second World War the pretext of central government policy, without being explicit, has been to use the construction industry as a regulator of the UK economy (Ball, 1988; Hillebrandt, 1985;1988). Three characteristics help to explain why

**Table 2.1 Value of Gross Domestic Product and Construction Output (£ million)**

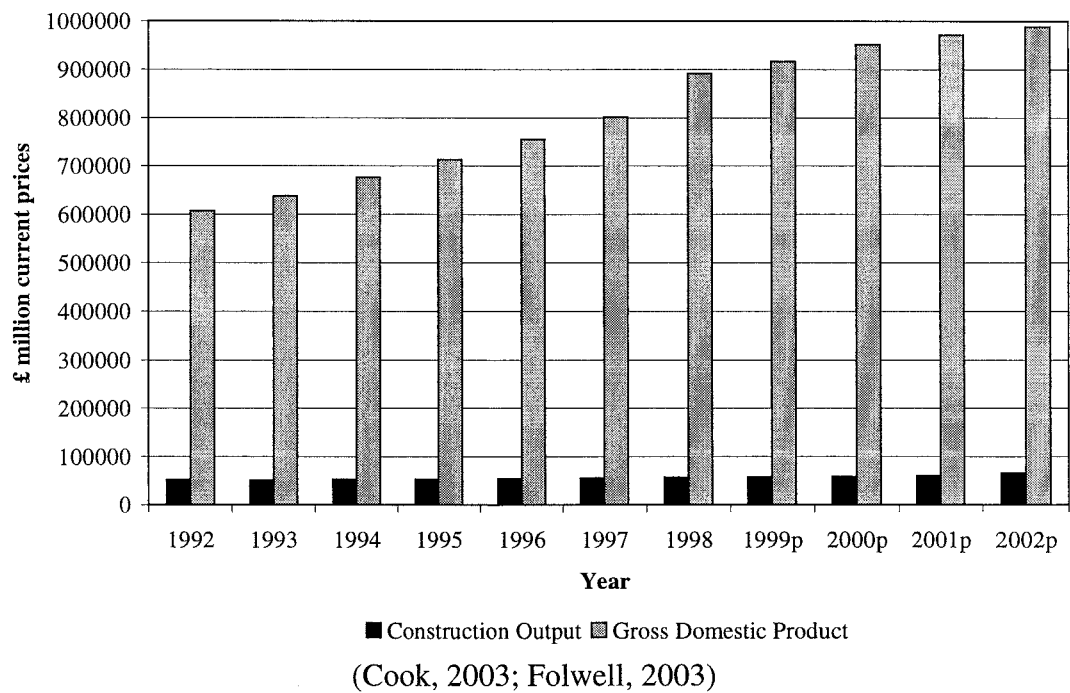
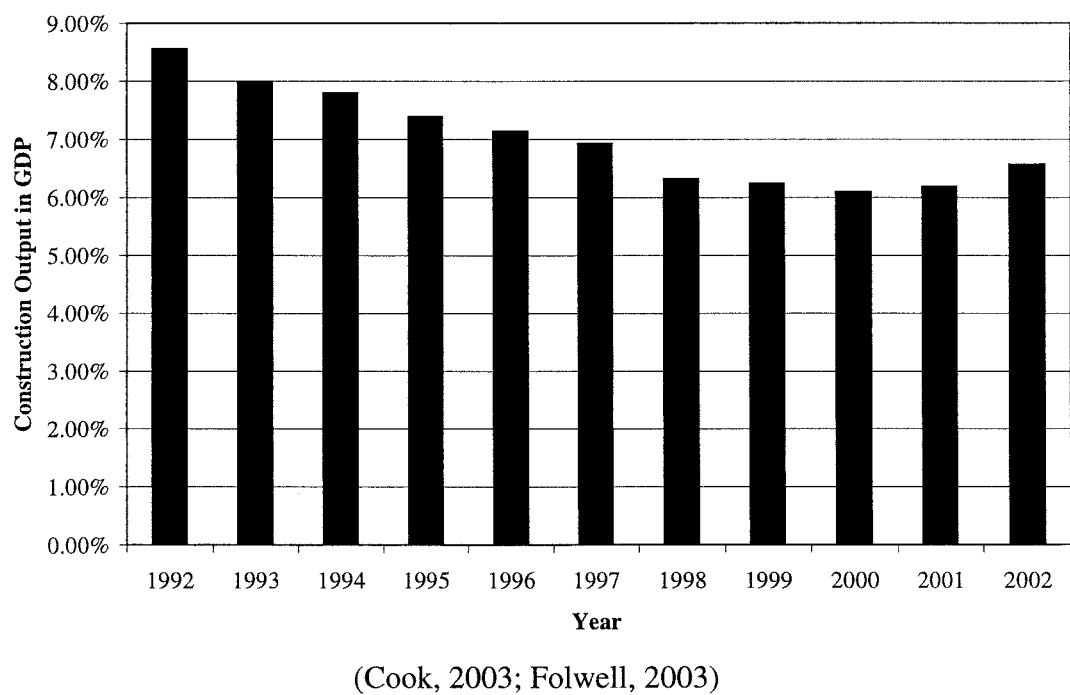
	1992	1993	1994	1995	1996	1997	1998	1999 <sup>P</sup>	2000 <sup>P</sup>	2001 <sup>P</sup>	2002 <sup>P</sup>
Construction output	51926	50980	52692	52642	53863	55468	56370	57190	58050	60101	64898
Gross domestic product (GDP)	606582	637817	676036	712548	754601	800944	891684	916639	951265	971565	988338
Construction output in GDP	8.56%	7.99%	7.79%	7.39%	7.14%	6.93%	6.32%	6.24%	6.10%	6.19%	6.57%

Constant (1995) prices seasonally adjusted (£ million)

P= provisional.

Output contractors, including estimates of unrecorded output by small firms and self-employed workers, and output by public sector direct labour organizations, classified to construction in the 1992 Standard Industry Classification.

(Cook, 2003; Folwell, 2003)

**Figure 2.1 Value of GDP and Construction Output (£ million)****Figure 2.2 Percentage Share of Construction Output in GDP**

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<sup>p</sup> Provisional

successive government administrations have attempted to abuse and manipulate the construction industry in this manner. Firstly, as previously discussed above in Sections 2.2.1 Comparative Physical Indicators and 2.2.2 Comparative Economic Indicators, the physical and economic size of the construction industry both directly and indirectly affects the GDP, the investment of capital in the UK economy and the level of employment or unemployment amid the total UK labour force. Secondly, the construction industry manufactures products which are mainly investment or capital goods. This is unfortunate for the construction industry as demand for its products is contingent upon favourable economic conditions in other sectors of the UK economy. What is more, as the products of the construction industry are investment or capital goods, their value is generally high in relation to the income of the purchaser or the consumer. The construction industry's products are therefore normally financed from capital or power that has previously been accumulated by the purchaser or the consumer (e.g. the construction industry client). Thirdly and finally, construction's dependence on the public-sector as a large and prestigious client (i.e. a central, local or quasi-governmental institution) has far reaching effects upon the industry and the UK economy. Once again this is regrettable, as public-sector construction work is normally undertaken for social and political reasons. Government therefore has the power to control directly and indirectly the demand on the construction industry through political, social and economic policies.

Despite recent qualitative changes to the structure and operation of the public-sector due to privatization and the reduced level of capital expenditure in this sector, the government still remains a large and prestigious client of the UK construction industry. Harvey and Ashworth (1993), however, have presented a paradox in their well-respected study regarding the economics of the British construction industry. They have contradicted the theories presented by Ball (1980; 1988) and Hillebrandt (1985; 1988), and have suggested that although the government is a major client of the construction industry, there is little evidence to substantiate their claims that it exploits the industry in order to regulate the UK economy. Harvey and Ashworth have professed:

Whilst the industry is damaged by the stop-go nature of its activities, there is only scant evidence that government effectively turns the tap on or off in order to regulate economic performance. It may defer or cancel construction projects for other reasons; such as to reduce the public sector borrowing requirement which in turn may create a knock-on effect. Cuts in public expenditure sometimes have a high construction consequence, but these are often accompanied by other measures, so it is debatable whether this can be cited as an example of economic regulation.

(Harvey and Ashworth, 1993: 16-7)

Historical attempts by the government to use the construction industry as a tool by which to regulate the UK economy has usually proved to be ineffectual. This is because of the construction industry's immeasurable inertia, which typically precludes it from responding instantaneously to unforeseen political or market forces. For example, Hillebrandt has attempted to confirm this argument by writing:

The problem with trying to use the industry as a regulator [of the UK economy] is that it is an ineffective tool because it is too slow to act. One of the features of the construction process is its duration and the expenditure on projects builds up slowly.

(Hillebrandt, 1988: 7)

Given the physical characteristics and the durable nature of the products that are manufactured by the construction industry, variations in the industry's output will have limited short-term effect on the overall quality of the built environment. Any reduction or increase in public- or private-sector expenditure in relation to either new-build or repair and maintenance work will therefore need to be long-term before significant changes to the built environment becomes apparent. Such limited short-term physical consequences attest to the construction industry's capacity to withstand the adverse effects of public-sector expenditure cuts.

Notwithstanding the repercussions of this debate, the government is able to influence the level of activity within the construction market through financial and legislative control and provision. Government is able to achieve these objectives by implementing the following control measures:



1. Reducing consumer purchasing power by indirectly raising the rate of taxation, i.e. VAT, and restricting the availability of credit. These measures effectively make it more difficult and expensive for purchasers or consumers to borrow capital.
2. Improving consumer purchasing power by promoting financial incentives, such as grants, benefits and other subsidies. These measures are normally presented to industrial or commercial clients in order to stimulate construction development in regions of low economic activity and accompanying high unemployment.
3. Changing legislation allied to construction activity, such as town and country planning, conservation and environmental issues, and the building regulations.
4. Reducing or improving its own capital or revenue expenditure on construction-related activity through the development, repair or maintenance of projects.

Irrespective of the government's ability to influence the level of activity within the construction industry, the factor that predominantly determines the consumer's or the construction industry client's decision to initiate construction-related activity is necessity. Often, necessity for the industry's products and professional services is a matter of personal choice, which cannot be influenced by government policy or factors over which the construction industry has any control whatsoever.

In general, the value of the combined output of the UK construction industry oscillates as a key indicator of the performance and condition of the national economy. To a certain extent this notion has been confirmed by Harvey and Ashworth who have remarked: "The effects of changes in output, employment, incomes or demand in the construction industry have repercussions in other sectors of the economy through a knock-on effect" (Harvey and Ashworth, 1993: 15). Paradoxically, because the construction industry's products can be regarded as investment or capital goods, any decline in its output or workload will have an adverse effect upon the other industrial sectors that operate within the UK market economy. Changes to government political, social and economic policies will therefore have both direct and indirect effects by either stimulating or depressing the workload in the UK construction industry. If the construction industry is to utilize and manage its resources both efficiently and effectively, a stable as opposed to an erratic workload is therefore essential. Such an approach could consequently enable construction-related organizations to enjoy the benefits associated with reduced

levels of *dysfunctional* social conflict during the construction process (see Section 4.9 Characteristics of Organizational Conflict on page 108 for more information about *dysfunctional conflict*).

## 2.4 CLASSIFICATION OF THE CONSTRUCTION INDUSTRY

*Construction* is a generic term that is used to describe an extensive range of activities in building and civil engineering and also the process-plant industry. It is principally an investment-goods industry that includes the erection of new structures; the repair, maintenance and demolition of existing structures; and the development of land and urban renewal. Murdoch and Hughes have provided support for this view by writing: “The term ‘construction’ can include the erection, repair and demolition of things as diverse as houses, offices, shops, dams, bridges, motorways, home extensions, chimneys, factories and airports” (Murdoch and Hughes, 1996: 1). These activities can also vary according to the size and type of the project and the professional and specialist skills and suppliers that are required to execute and complete the project. Such diversity unfortunately means that it is extremely difficult to classify and order the construction industry. This is predominantly because:

1. The social and contractual relationships between the different parties that are involved in the construction process are not always clearly defined.
2. The boundary or domain of the industry itself is unclear and dynamic.

In their study of the construction industry of Great Britain, Harvey and Ashworth (1993) define a series of characteristics that differentiates the construction industry from other manufacturing-based industries. These relatively straightforward yet sophisticated characteristics can be summarized into the following salient points:

1. The physical nature of the product.
2. The product is large and expensive and represents a client’s largest single capital outlay.

3. The product is normally manufactured on the client's premises, i.e. the construction site.
4. Many of its products are one-off designs and lack any prototype model being available.
5. The arrangement of the industry, where design has normally been separated from construction.
6. The organization of the construction process.
7. The methods used for price determination.

(Harvey and Ashworth, 1993: 2)

Nonetheless, from an exclusively construction economics perspective, Hillebrandt (1988) has presented a parallel series of principal categories in which the UK construction industry can be classified. The four categories identified by Hillebrandt include:

1. The way in which demand reaches the industry from the client, the method of finance, and the method of organising the construction process.
2. The use to which the product is to be put, for example, education, water supply, housing.
3. The type of construction, for example, heavy civil engineering, timber-frame housing or repair and maintenance.
4. The type of organisation involved in construction, for example, large international contractors or small local contractors, general contractors or specialist subcontractors, builders or civil engineers, a full professional team or design on-the-job by the local builder.

(Hillebrandt, 1988: 3)

Initially, Harvey and Ashworth's and Hillebrandt's classification frameworks can appear to be rather simplistic and impracticable by exclusively considering the physical nature and characteristics of the construction process and the manufactured product. This conviction is expressed by Ball who clarifies the misleading aspects of such classification frameworks:

Physical types of work and size classifications are extremely useful but, in isolation, they do not say much about how the industry functions because they do not describe how the different agencies in the construction process work together – in other words, they ignore the industry's social relations of production.

(Ball, 1988: 42)

Hillebrandt nevertheless successfully defends her work by emphasizing the ability of the four principal categories to successfully encompass the building and civil engineering divisions. Although these industrial divisions are periodically conjoined for economic and statistical purposes, Hillebrandt acknowledges that considerable differences normally exist between the two. She has succinctly summarized these differences into the following five points:

1. Distinct clients and determinants of demand.
2. Distinct environmental and construction uncertainties.
3. Distinct construction techniques and resource requirements.
4. Distinct levels of subcontracting.
5. Distinct projects (i.e. scale, type and value).

In comparison to the above theoretical classification frameworks that were developed by leading economists, the distinctiveness of the building and civil engineering divisions has also been studied from within the construction industry itself. The National Economic Development Office (NEDO) in 1976 published an empirically-based report that was undertaken jointly by the Economic Development Committees (EDC) for Building and Civil Engineering (National Economic Development Office, 1976). The primary aim of their investigation was to examine how construction-related professionals influence the industry's economic performance and how they could improve the industry's economic well-being. In addition to this primary aim, the study also reported on the fundamental differences that exist between the building and civil engineering divisions of the UK construction industry. The report concluded that civil engineering is predominantly concerned with large-scale, public-sector infrastructure projects that provide direct benefit to local, national and

international communities. Furthermore, as civil engineering projects tend to be functional in their nature, the report implied that the construction process is exposed more to the uncertainties and risks associated with poor ground and weather conditions. But most importantly, NEDO articulated the unique characteristics that it believes differentiate building from civil engineering. These attributes included the opinion that building is highly fragmented with more distinct professions and subcontracting trades, and that building primarily focuses its attention on small- to medium-sized projects and the subjective aspects of design quality.

Subsequently, in 1992, the Construction Industry Research and Information Association (CIRIA) published an interesting and unbiased account of the UK construction industry as viewed from a continental European perspective. During the report, CIRIA propounded the attributes that it strongly believed distinguishes the building and civil engineering divisions from one another. The attributes identified by CIRIA can be outlined as follows:

1. Each division has their own independent professional structure, practices and forms of construction contract.
2. Each division belongs to a different trade body.

(Huru, 1992: 10)

Conversely, there is also considerable overlap between the two divisions, especially in the use of management systems, materials, labour, industrial plant and firms, as many contractors manufacture products and provide professional services in both the building and civil engineering sectors. They can also undertake work for similar types of client, e.g. public- and private-sector clients, and to a smaller extent, private households.

It is therefore apparent that a degree of uncertainty appears to exist within the literature with respect to the development of a definitive classification framework for the UK construction industry. In an attempt to alleviate this particular problem for the purpose of this current Ph.D. research project, the distinctiveness of the building and civil engineering divisions is recapitulated below in Table 2.2 on page 27.

**Table 2.2 Comparison between Building and Civil Engineering Industries**

Building Industry	Civil Engineering Industry
<ol style="list-style-type: none"> <li>1. Small- and medium-sized projects.</li> <li>2. Contributes to the overall built environment.</li> <li>3. Closer contact with private-sector clients and end-users.</li> <li>4. Normal exposure to ground and weather conditions.</li> <li>5. Greater number of distinct professionals and subcontracting trades.</li> <li>6. Greater concern about quality.</li> </ol>	<ol style="list-style-type: none"> <li>1. Very large projects.</li> <li>2. Contributes predominantly to infrastructure projects.</li> <li>3. Closer contact with public-sector clients.</li> <li>4. Greater exposure to ground and weather conditions.</li> </ol>

Despite the fact that there are real differences between the two divisions, it is generally accepted that building and civil engineering are frequently integrated for statistical, economic and research purposes. This disparity, which can often lead to uncertainty and inefficiency during combined economic and statistical analysis, was actually resolved by Sir Harold Emmerson some time ago. Emmerson concluded that it would not be to the advantage of either division if they were to be considered as one entity (Ministry of Works, 1962). He has made this point perfectly clear in the following statement:

Building is essentially an assembly industry which is undergoing rapid changes with the development of prefabrication and new techniques of construction. Civil engineering contractors are engaged for the most part on large-scale projects, usually with less intricate problems of organisation. There is naturally a good deal of common ground, but it is important that the interests and needs of the building industry should be clearly identified and not confused with those of the civil engineering industry.

(Ministry of Works, 1962: 7)

Consequently, this Ph.D. investigation intends to fully acknowledge Emmerson's recommendations and to focus its attention upon the dysfunctional *relationships* that typically exist between building industry-related organizations during the design development and on-site fabrication of new-build, medium-sized and large projects.

## 2.5 CHARACTERISTICS OF THE CONSTRUCTION INDUSTRY

Putting aside the theoretical debate concerning the classification of the construction industry for the time being, apart from its physical and economic size, construction is perhaps one of the UK's most diverse manufacturing-based industries. This supposition can be attributed to the following three factors:

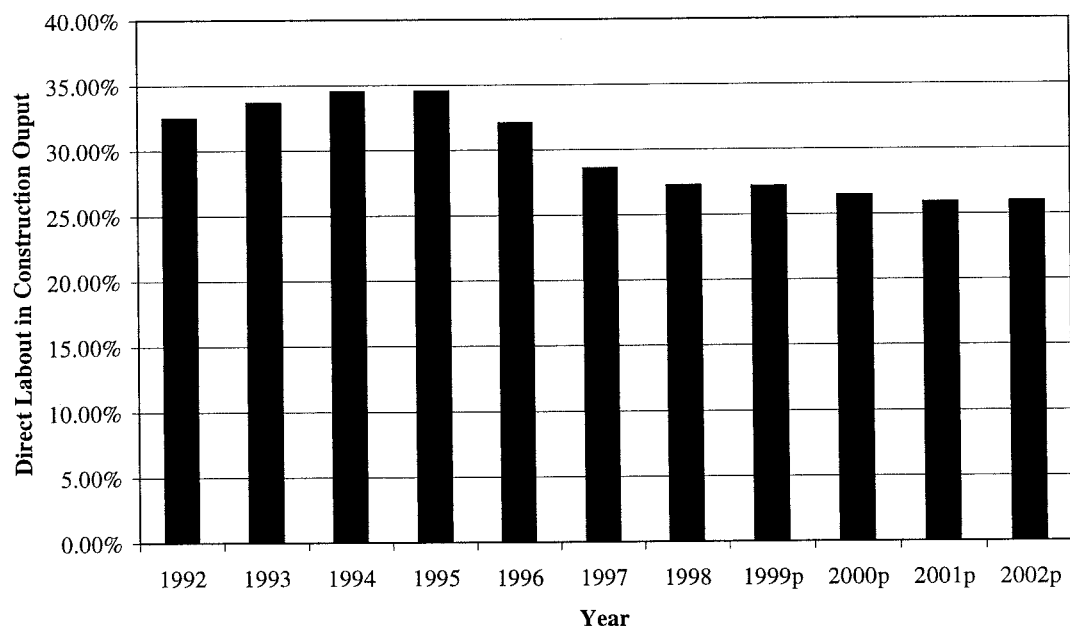
1. The extensive range of end-products that it produces for both public- and private-sector clients at home and overseas.
2. The large number of different materials and components that it uses, which are produced by many different processes.
3. The broad spectrum of people and firms working within it, viz. building materials producers, building merchants, professional design and cost consultants, contractors, specialist subcontractors and general trades operatives.

With the exception of private house-building, the products that are manufactured or constructed by this diverse industry are unique: each product being the equivalent of the general manufacturing industry's prototype (Fisher, 1993). This uniqueness often leads to management- and operative-based learning curves, as design, production and management uncertainties are the inevitable consequences of such a distinctive manufacturing-based industry. Incidentally, the construction industry is probably the only manufacturing-based industry that willingly produces such a varied range of bespoke end-products without significant repetition in order to maximize the potential benefits that are commonly associated with economies of scale (Ball, 1980;1988; Fisher, 1993; Hillebrandt, 1985;1988).

The UK construction industry is also unique in terms of the types of business organizations or firms who manufacture products and provide professional services within it. Construction output is typically produced by two main types of organization, viz. domestic or multi-national private-sector contracting firms and public-sector direct labour organizations (DLOs). In his discourse on the economics of the UK construction industry, Briscoe has remarked: "The private sector is the dominant producer, with the DLOs typically contributing only about 10-15% of the total output" (Briscoe, 1992: 61). However, recent figures published by the DTI (Folwell, 2003) appear to disagree with Briscoe's conservative speculation. For

instance, the DTI has shown that public-sector direct labour output has steadily declined over the last decade from an initial high of 32% of construction output in 1992 to what appears to be a recently stabilized all-time low of 26% of construction output in 2002. These figures highlight the fact that the private-sector is indeed the dominant producer, with the public-sector currently contributing around one-quarter of all construction output in the UK. Unless there is an immediate change to current government policy, it is highly unlikely that this downward trend in public-sector output will come to an end over the next decade or so. The data published by the DTI are illustrated in Figure 2.3 below and are also graphically displayed in Table 2.3 on page 30.

**Figure 2.3 Percentage Share of Direct Labour Output in Construction Output**



(Folwell, 2003)

One factor that clearly distinguishes construction from other manufacturing-based industries is the wide spectrum of private-sector firms that appear to dominate the industry's production and output. These private-sector firms can vary in physical size and often range from:

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<sup>p</sup> Provisional



**Table 2.3 Value of Direct Labour Output and Construction Output (£ million)**

	1992	1993	1994	1995	1996	1997	1998	1999 <sup>P</sup>	2000 <sup>P</sup>	2001 <sup>P</sup>	2002 <sup>P</sup>
Construction output	51926	50980	52692	52642	53863	55468	56370	57190	58050	60101	64898
Public sector direct labour output	16870	17160	18193	18186	17275	15847	15365	15524	15350	15570	16861
Direct labour to construction output	32.49%	33.66%	34.53%	34.55%	32.07%	28.57%	27.26%	27.14%	26.44%	25.91%	25.98%

Constant (1995) prices seasonally adjusted (£ million)

P= provisional.

Output contractors, including estimates of unrecorded output by small firms and self-employed workers, and output by public-sector direct labour organizations, classified to construction in the 1992 Standard Industry Classification.

(Cook, 2003; Folwell, 2003)

1. Large contractors who employ thousands of people, utilize large quantities of industrial plant and other resources, quarry and manufacture materials, and possess large capital reserves; to
2. Small local builders (often single craftsmen) whose sole capital may consist of little more than the equipment they use.

Apart from the different categories of construction-related firms that normally manufacture products and provide professional services within the industry, the most notable characteristics of the UK construction industry include:

1. The physical nature of its product.
2. The physical nature of its production processes.
3. The high degree of subcontracting.
4. The high proportion of self-employed operatives that receive incentive payments.
5. The low proportion of capital investment for research and development purposes.

From this list of characteristics, the interdependence between the physical nature of the product and production processes and the *fragmented* structure of the UK construction industry has been widely discussed by several influential scholars over fairly recent years (e.g. Ball, 1980;1988; Fisher, 1993; Hillebrandt, 1985;1988; Winch, 1989). Not surprisingly, however, these theorists have been unable to establish a consensus of opinion regarding the explication of these relationships. This theoretical impasse is illustrated by Hillebrandt who has enunciated:

It is largely these product characteristics [i.e. large, heavy, expensive, physical products which are constructed on-site from components which are predominantly manufactured off-site] which determine the structure of the industry, including the large number of dispersed contracting firms and the separation of design in professional offices from construction firms . . .

(Hillebrandt, 1985: 8)

She then corroborates her conviction with an additional declaration:

The physical nature of the product, its diversity and often complexity, as well as the wide geographic spread of demand for it and the fluctuations in demand, have together moulded the structure of the industry and determined the process of creating a construction good from the client's need to the production on site.

(Hillebrandt, 1988: 2)

However, Ball contradicts Hillebrandt's argument in the following way:

Whilst it is the physical nature of building which places limits on the types of products that can be produced and the techniques used, it is the organisational structure of the industry which fixes, within those limits, the nature of the product and how it is produced.

(Ball, 1980: 13)

Even though they are recognized as being experts in their own particular field, it is apparent that Ball and Hillebrandt are unfortunately unable to determine whether the structure of the UK construction industry is contingent upon the physical nature of the product and production process, or vice versa. Ironical though this may well be, they have all agreed on one important point: construction is an extremely *fragmented* industry. Hillebrandt has confirmed this by stating:

Building is a fragmented industry with many professions and contractors and subcontractors and a wider range of project size. Clients are diverse including the public sector and a large number of individual firms and persons.

(Hillebrandt, 1988: 3)

## 2.6 FRAGMENTATION IN THE CONSTRUCTION INDUSTRY

Construction is undoubtedly a highly fragmented industry. It utilizes many professionals, contractors, subcontractors, self-employed skilled tradesmen and general trade operatives, and manufactures an array of different products for diverse

clients or purchasers. Murdoch and Hughes have attempted to rationalize our general understanding of fragmentation in the UK construction industry by explaining:

The fragmentation of construction into a large number of diverse skills is an inevitable consequence of the economic, technological and sociological environment; there is an extraordinary diversity of professions, specialists and suppliers.

(Murdoch and Hughes, 1996: 2)

Although the concept of fragmentation is relatively easy to comprehend, it is not so easy to define or study. Ive (1995) has attempted to resolve the first of these two problems by neatly and concisely defining fragmentation as the separation of roles, responsibilities and knowledge between construction industry clients, professional design consultants and contractors during the initiation, design development and fabrication of construction projects. But the Construction Task Force, under the direction of Sir John Egan, has attempted to execute the last and most difficult task. It has completed an investigation of the house-building sector of the UK construction industry and subsequently published a report which outlines possible remedies for the adverse effects of fragmentation. The finer details and implications of these innovative recommendations are evaluated a little later in Section 3.5.2 Egan Report on page 58.

In the report of the Construction Task Force (Egan, 1998), Sir John Egan recognizes that the fragmentation of the UK construction industry inhibits performance improvement. He vindicates the existence of fragmentation by explaining that it typically involves:

1. A large number of separate organizations in design, price determination, production and management; and
2. The utilization of an extensive range of materials and components which are manufactured and supplied by a number of other industries.

Egan then continues to broaden this level of understanding by carefully describing how the presence of fragmentation within the UK construction industry could be considered as both a strength and a weakness. He has explained:

1. On the positive side, it is likely that it has provided flexibility to deal with highly variable workloads. Economic cycles have affected the industry seriously over past decades and have meant that it has been forced to concentrate more on survival than on investing for the future.
2. On the negative side, the extensive use of subcontracting has brought contractual relations to the fore and prevented the continuity of teams that is essential to efficient working.

(Egan, 1998: 6)

Notwithstanding the existence and effects of fragmentation and how it distinguishes construction from other manufacturing-based industries, Hillebrandt (1985; 1988) completely disregards the rationale for its certainty. In response to this theoretical limitation, Ball argues that fragmentation originates from capitalism by proclaiming: “Capitalism has created enormous physical and organisational fragmentation in the building industry” (Ball, 1980: 31). Furthermore, he emphatically states that building firms are essentially capitalist enterprises, i.e. like the majority of other manufacturing-based industries in a capitalist economy, and that the UK construction industry is generally organized for the investment of money in order to make a profit.

Capitalism inevitably constrains building firms to provide professional services in order to manufacture products and utilize materials, components and techniques that yield the greatest profit. It also influences the specific nature of the relationship between commodity production and commodity exchange, i.e. the type of social relationship that exists between the client or the purchaser and the building firm. There are two distinct types of social relationship that can exist within the boundaries of the construction industry. These social relationships can be categorized and defined as follows:

1. **Contracting** – where building firms build to contract when a specific client or purchaser orders a specific building.
2. **Speculative building** – where building firms build speculatively for a general market in which the purchaser of the building is not known until after the building process has commenced.

However, as will be discussed in Section 2.7 Contracting in the Construction Industry immediately below and again in Section 2.8 Speculative Building in the Construction Industry on page 36 of this chapter, the economic forces that tend to regulate these social relationships are very different indeed.

## 2.7 CONTRACTING IN THE CONSTRUCTION INDUSTRY

The majority of the work that is completed in the UK construction industry is undertaken by building to contract. This is where construction industry clients commission individual buildings and building firms enter into contracts with clients in order to manufacture them. Under the contracting system, building firms are contractually required to complete and construct the contract works in accordance with the standards and specifications that are outlined in the contract documents. On the other hand, clients are contractually required to periodically pay the contractor for the completed works, i.e. a fixed sum of money or a fixed price per unit of work, and in certain circumstances, to compensate the contractor for unexpected loss and expense. Contractors, therefore, do not invest capital or undertake contract works until the final product is sold, and hence maximize their profit from the process of physically constructing a building.

Two types of capitalist enterprise dominate the UK construction industry, viz. main contractors (i.e. *primary* contractors) and specialist subcontractors (i.e. *secondary* contractors). The basic position in law is that the client, primary contractor and secondary subcontractors are all linked together via a contractual chain. Under English law, this chain incorporates distinct contracts that are of direct legal concern to those who constitute its parties. Normally, these parties mutually agree to the general principles, terms and conditions under which their contractual relationship is formed and governed. Thus, the main contract normally only affects the client and the primary contractor, and the subcontract normally only affects the primary contractor and the secondary subcontractor.

The Contracts (Right of Third Parties) Act 1999, however, has recently changed this legal arrangement by attempting to protect the legal rights of third parties to such

contracts. The act came into force on 11 May 2000 and has particular importance in the UK construction industry as it can be applied to all forms of contracting. In general, it outlines the circumstances that an outsider to a contract, i.e. a third party, can enforce a contract or contractual provision to which it is not a party. In other words, the act stipulates the conditions under which the outsider can change places with a party to the contract. This arrangement therefore enables the outsider or third party to sue. There is, however, one important legal aspect that must be determined if the act is to be enforced successfully. This item is called the *proviso*, and it is the presumption under the act that the contract expressed or implicitly purported to confer a benefit to a named outsider or a third party, i.e. another person, group of people or organization. Crucially, it is not only the identification of the beneficiary that is important but also the establishment of the intention that the parties to the contract conferred the right to sue on the contract term.

The rationale behind the formation and application of such construction contracts is the legislative underpinning and standardized regulation of the many different commercial and business transactions that occur during the process of physically constructing a building. This is typically known as the *contracting system*. The contracting system has therefore been instrumental in the development and structure of the UK construction industry. This is because it has enabled contractors to establish and regulate exchange relationships within a highly institutional and effectual context. However, as will be discussed later in Section 2.9 Social Conflict and the Contracting System on page 37, there are inherent attributes bound within the contracting system that are fundamental to the occurrence of social antagonisms (i.e. social conflicts) within the UK construction industry.

## 2.8 SPECULATIVE BUILDING IN THE CONSTRUCTION INDUSTRY

In complete contrast to building to contract, speculative building is where construction industry clients commission individual buildings for future sale within a general market, and building firms enter into contracts with clients in order to manufacture them before they are sold. Speculative building involves the purchase or speculation of land and the construction of a building on the land, or the

acquisition of statutory development approval for the construction of a particular type of building on the land. It is normally restricted to private house-building and to certain categories of industrial and commercial, i.e. retail and office, development. In all events, private house-building is an exceptional form of speculative building. This is because it involves the purchase of land and the construction of houses on the land by a single building firm, viz. a speculative house-building company.

Speculative building is distinguished from building to contract by the fact that contractors invest capital and undertake contract works before the final product is sold. It is further differentiated by the method of profit production for the contractor and the client: for the contractor, profit is made from the contract works alone; but for the client, profit is made from both the contract works and from development gains. The economic forces that influence clients are therefore different to those that affect contractors. This premiss is confirmed by Ball who has remarked: "They [speculative builders] have to worry about land holdings; whereas, for the contractor, land assembly and its cost is the client's problem not their own" (Ball, 1980: 9).

To a large extent the categories of building projects that are undertaken by speculative building firms depends on two factors: firstly, the amount of capital that has to be invested; and secondly, the expected construction period and the source of finance. Large-scale industrial or commercial speculative developments are hence uncommon. Moreover, they tend to be exclusively undertaken by large, wealthy speculative building firms who are able to invest capital for extended time periods. It can thus be inferred that speculative building firms are capitalist enterprises: as they usually buy cheap and then sell dear, whilst maximizing their potential net profit by timing the process correctly.

## 2.9 SOCIAL CONFLICT AND THE CONTRACTING SYSTEM

According to Ball (1988), two distinctions can be made between contracting and speculative building. Firstly, the construction process becomes the vehicle by which profits are maximized as opposed to a prerequisite for the realization of development gains. Secondly, a division exists between the conception of a building project and



its subsequent productive implementation. The client is therefore the developer and the contractor the producer, with professional design consultants, i.e. architectural design consultant, structural engineering design consultant and the building services engineering design consultant, providing the specifications and working drawings that are necessary for the fabrication of the construction project. Unfortunately, such structural and operational divisions can create potential social antagonisms between the two distinct aspects of the building process, viz. between the design development and construction or fabrication sub-processes.

In his textbook examining economic theory and change in the UK construction industry, Ball broadens the understanding of the effects of such potential social antagonisms by declaring:

Such antagonisms make the conditions of market exchange under which the building contract is drawn up crucial. Elaborate legal frameworks and forms of contract have developed in this exchange relationship . . . . Where the project is large and many subcontractors are involved these exchange relations can get extremely complicated. Each part of them has to be seen as a component of conflicts between the divergent interests of the parties involved.

(Ball, 1988: 48)

Thus, the contracting system is a term that is frequently used to define the complex network of *social relations* that exist between the building firms that typically operate within the UK construction industry. One important aspect of the social relations associated with the contracting system is the manifestation of social antagonisms, or to be more precise, *social conflicts*, i.e. *inter-organizational conflict*, between the various building firms. Ball augments our understanding of social antagonisms or social conflicts within the contracting system by maintaining:

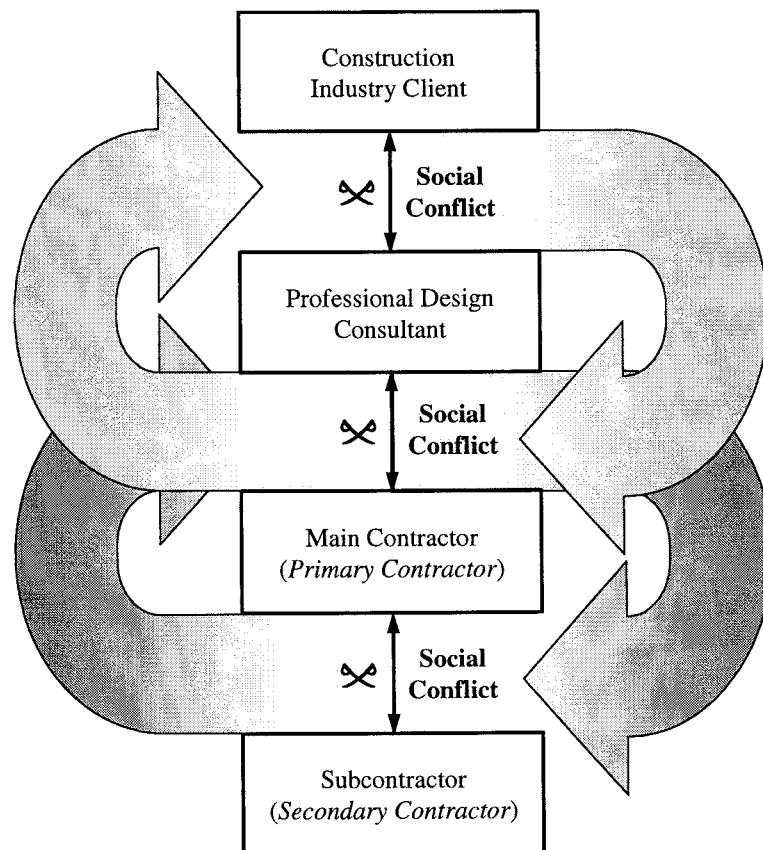
With speculative building, the potential social antagonisms are primarily between landowners, building firms and building workers; in the contracting system, they are between clients, design and other professionals, building firms and building workers. The social antagonisms between capitalists and workers in construction therefore has never been

a simple two-way conflict. It has always been structured by simultaneous conflicts with other agencies.

(Ball, 1988: 48)

From Ball's perspective it is apparent that the nature of the social conflicts that exist between the firms operating within the contracting system is complex and contingent upon their network of social relations. For example, where a social relationship exists between two or more social agencies, i.e. between the client and a particular professional design consultant, between the professional design consultant and a building firm, and between the building firm and the building workers, social conflicts are likely to occur. Regrettably, Ball's theory regarding social conflicts within the contracting system can initially appear to be rather simplistic and hierarchical in nature. Nevertheless, he does acknowledge that social conflicts between social agencies in the contracting system are not simple two-way or hierarchical conflicts but are structured and operate simultaneously with conflicts arising between neighbouring social agencies. For example, social conflicts between the client and a particular professional design consultant, and between the building firm and the building workers, are likely to influence the relations and social conflicts between the professional design consultant and the building firm, etc. This pivotal conviction, which is central to this doctoral research project, is graphically displayed below in Figure 2.4 on page 40, and represents the movement or *transference* of social conflict from one social group (or location) to another.

Such diagrams suggest that fragmentation within the UK construction industry is the structural result of the contracting system, which in turn has evolved as a result of capital responding to the uncertainties associated with the physical nature of its product, the physical nature of its production process and the specific nature of its social relationships. Capitalism has therefore compelled building firms to transfer contracting uncertainties, e.g. operational risks and costs, down the contractual chain via the process of subcontracting in order to maximize net profit and to sustain flexibility.

**Figure 2.4 Social Conflict in the Contracting System**

The fragmented nature of the UK construction industry also means that functional differentiation generally takes the form of operational differentiation between building firms. This concept is exemplified by Simon, who has categorized the existence and operation of specialist or functionally differentiated building firms into the following four broad divisions:

1. **Craft firms** – firms or departments of contracting firms which confine themselves entirely to one or other of the building crafts such as plastering, plumbing, painting, masonry, joinery, tiling.
2. **Structural firms** – firms which specialise in structural steel, reinforced concrete, floors, and similar structural portions of the building.
3. **Services firms** – firms who specialise in the mechanical and other equipment of buildings, such as electricity, heating, ventilation, lifts, sanitary ware and similar work.

4. **Finishes firms** – firms who specialise in decoration and other finishings, such as terrazzo, fibrous plaster work and mastic asphalte [*sic*].

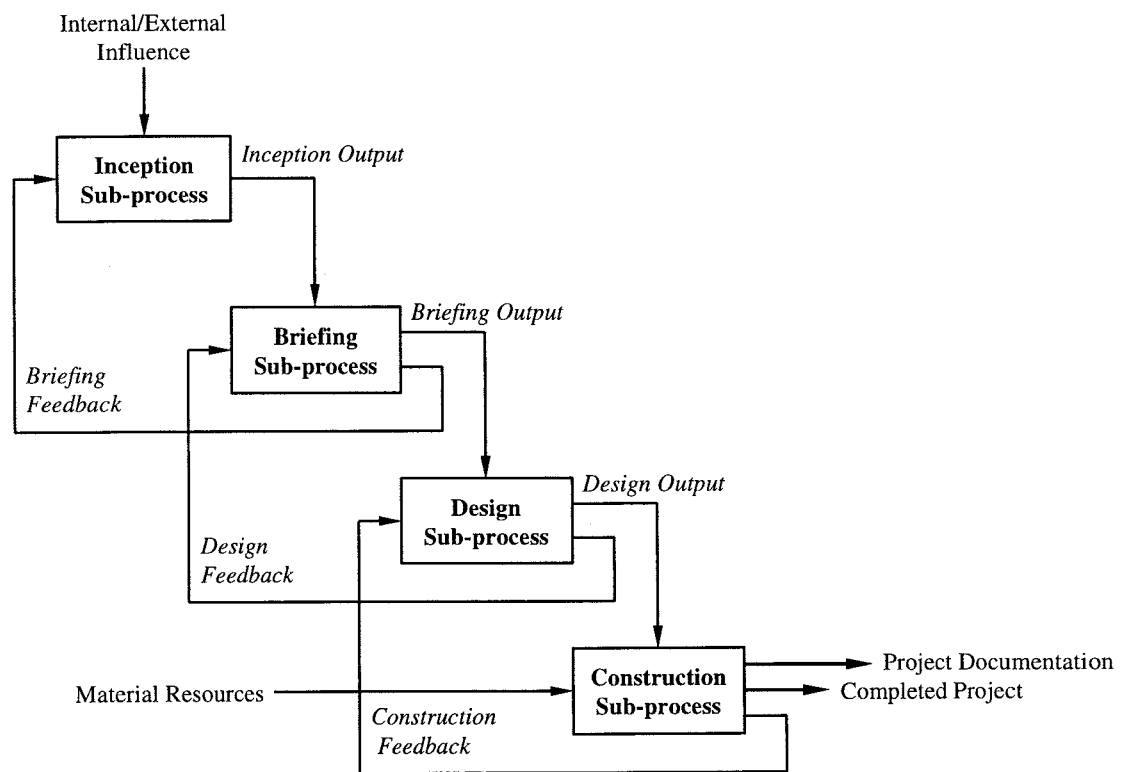
(Ministry of Works: Central Council for Works and Buildings, 1944: 6)

The ever-increasing demand for improved efficiency and productivity, i.e. the ramification of capitalism and profit maximization, therefore motivates the construction industry to develop new materials and components, new production processes and new methods of fabrication. This inevitably promotes functional or operational differentiation, which simultaneously exacerbates the extent of fragmentation and the use of subcontracting within the UK construction industry.

## 2.10 SUBCONTRACTING IN THE CONSTRUCTION INDUSTRY

Construction is not the only industry to utilize subcontractors. Subcontracting is a feature that is common to most manufacturing-based industries. The principal reasons for this are that it facilitates the specialization of knowledge, skills and technology, and promotes a flexible response to the complex and inconsistent determinants of demand. What is particularly distinctive about the construction industry, however, is the nature and extent of its application, i.e. it predominantly occurs at the point of production, as opposed to the zone of component assembly.

As previously mentioned above, the contracting system encourages both large and small specialist building firms to be socially and economically linked together and integrated during specific construction projects via complex subcontracting chains. This allows the physical functions or operations that are required for the construction of large building projects to be undertaken as a series of smaller, discrete and inter-related production sub-processes as illustrated below in Figure 2.5 on page 42. It is these discrete production sub-processes that truly reflect the fragmented structure of the construction industry in the UK. Unfortunately, this industrialized fragmentation has produced substantial difficulties associated with the efficient and effective communication of highly technical and scientific-based knowledge between the specialist building firms that are bound by the social and economic relationships of the contracting system. Such communication difficulties inevitably constrain the

**Figure 2.5 Simplified Model of the Construction Process**

(Gardiner and Simmons, 1992b: 464)

successful realization of building projects and sustain a confrontational culture that encompasses both contractual and social conflict. Gardiner and Simmons (1992b) have pronounced this concept by explaining that any production process which is fragmented into a multitude of sub-processes, some occurring serially and others in parallel, provides ample opportunity for social conflict to naturally arise between its smaller, discrete and inter-related production processes.

Fragmentation has similarly produced the highly criticized problems of co-ordination between the design and construction sub-processes of building projects, i.e. between the professional design consultants and the specialist building firms. Sir Harold Emmerson has outlined the problems that are commonly associated with this lack of operational cohesion in his often-quoted report. In the report he writes: "In no other industry is the responsibility for design so far removed from the responsibility for production" (Ministry of Works, 1962: 9). He clearly explicates his exposition in the following manner:

There is a good deal of criticism [about the] lack of cohesion between the architect and his professional colleagues and the builder. The problem does not seem to arise in the civil engineering industry where there is close personal contact between the civil engineer and the contractor. In building there is all too often a lack of confidence between architect and builder amounting at its worst to distrust and mutual recrimination.

(Ministry of Works, 1962: 9)

According to Emmerson, “lack of cohesion” or *operational uncertainty* and “distrust and mutual recrimination” or *social conflict* are the potential incidental products of the relationships that typically exist between the professional design consultants and the specialist building firms. Ball (1988) subsequently made the same fundamental observation, concluding that social conflicts between the specialist building firms in the contracting system are not simple two-way or hierarchical conflicts but are structured and operate simultaneously with other social conflicts arising between neighbouring specialist building firms.

During the last half-century several distinguished government and industrial sponsored report authors have commented on the significance and the adverse outcomes of subcontracting and fragmentation in the UK construction industry (e.g. Egan, 1998; Latham, 1994; Ministry of Public Buildings and Works, 1964; Ministry of Works, 1962; Ministry of Works: Central Council for Works and Buildings, 1944). Primarily driven by capitalism and the ever-increasing demand for improved efficiency and productivity, they have recommended both structural and operational improvements to the construction process. Essentially, their recommendations have been focused upon the need to examine construction industry inter-organizational relationships (CIORs).

In contrast to these government and industrial sponsored reports and their subsequent empirically-based recommendations, Ball (1980) has also considered the adverse effects of subcontracting and fragmentation but from a theoretical perspective. He has remarked: “Improvements in the building process will generally be centred within its fragmented parts rather than across the whole building process” (Ball, 1980: 32). By focusing his attention on the individual building firms, Ball has

unfortunately limited the scope and value of his research and its findings. However, in theoretical work subsequently published by Ball in 1988, he commented on the significance and interdependence of the *relationships* that normally exist within the boundaries of the contracting system and the *manifestation* of social conflict therein.

It is somewhat disappointing that Ball disregarded the potential of his theories with respect to the development of a clearer understanding of the effects of social conflict on the entire construction process, and in particular, ineffective inter-organizational relationships. Indeed, the explication of a detailed interpretation of social conflict, which naturally occurs *within* and *between* the fragmented parts of the construction process – particularly the design development and production sub-processes – is an important objective of this particular research investigation. Ergo, this study intends to explore the factors that contribute towards the manifestation of social conflict between the construction-related organizations that are commonly responsible for the design development and fabrication of new-build, medium-sized or large building projects. It is anticipated that this will involve the collection of primary data from groups or networks of construction-related organizations that are located within the same set or *inter-organizational field* (see Section 5.5.1 Dimensions of Inter-organizational Exchange on page 124 for additional information about *inter-organizational fields*).

## 2.11 SUMMARY

This chapter has outlined the nature and origin of inter-organizational relationships among the construction-related organizations that participate in the procurement of building projects in the UK construction industry. It was argued that the social and contractual relationships that exist between the different parties or social agencies are not always clearly defined. The fragmentation of the overall construction process into a number of discrete activities or sub-processes has resulted in the separation of roles and responsibilities of the participants who collectively form construction project organizations. It was suggested that fragmentation inhibits industrial performance improvement and encourages the emergence of social conflict among related organizations. Ineffective construction industry inter-organizational

relationships were therefore defined as the root cause of performance deterioration and social conflict between organizations throughout and between the sub-processes of designing and constructing new buildings.



### **3 CONSTRUCTION ORGANIZATION THEORY**

#### **3.1 INTRODUCTION**

The premise of this study is that social conflict in the UK construction industry is closely related to the attributes of the inter-organizational structures of construction project organizations. Having said this, it must also be recognized that construction project organizations are complex social systems which are difficult to conceptualize. The distinctive yet inconsistent nature of building projects, their environments and construction processes means that much remains to be learned and understood. Factors such as fluctuating workloads, prototypical projects, subcontracted firms and operatives, inconstant regulatory bodies and frequent government policy changes pose particular problems for those scholars who propose to study construction project organizations. Whilst the focus of most research on construction management remains largely on procedures and techniques, the significance of core sociological theories to project management processes and construction project organization structures have consistently been overlooked. This chapter aims to resolve this deficiency by developing a clear understanding of one particular construction project organization model that respects both systems-based and sociological theories. Certain attributes associated with construction industry clients that significantly influence the performance of construction project organizations will also be presented.

#### **3.2 CLIENT ORGANIZATIONS**

The clients of the UK construction industry are generally fundamental to the implementation of the construction process (Egan, 1998; Latham, 1993;1994). Because of their basic demand for the construction, refurbishment, maintenance and repair of houses, schools, hospitals, shops, offices, factories, roads, bridges, railways and sewers, i.e. the infrastructure of society, clients are frequently motivated to commission construction-related activity: thereby initiating the construction process. Since clients are typically the sole consumers of the construction industry's products and professional services, they tend to expect the industry to respond to and to duly satisfy their specific needs. This industrial-based requirement is compounded by the

fact that there are many different types or categories of construction industry client. Such diversity is further complicated by the inability of the construction industry to formulate a standardized operating procedure or social exchange relationship with clients *per se*. Nevertheless, even though clients are diverse and unique in terms of their background, experience and requirements, they can metaphorically be regarded as the *core* or *nucleus* of the construction process. Sir Michael Latham initially made this symbolic resemblance or nuclear physical analogy of the social and functional relationships that typically exist between clients and the construction process in his influential report that was published in 1994.

In essence, and by virtue of their centralized position, Sir Michael Latham has suggested that construction industry clients are able to take an active role during the conception and maintenance of the construction process. This is because they have the potential to maximize their relative power in order to directly influence or manage those construction-related firms (or organizations) that are normally bound by the capitalist-based attractiveness of the contracting system (see Section 2.7 Contracting in the Construction Industry on page 35, Section 2.9 Social Conflict and the Contracting System on page 37 and Section 2.10 Subcontracting in the Construction Industry on page 41 for more information about the *contracting system*). It could therefore be argued that without their presence and subsequent decision-making authority, the construction process would probably never begin, and ultimately, the construction industry would probably cease to exist in its current manner. Consequently, the critical role and importance of clients to the existence and perpetuation of the construction industry should never be underestimated.

### 3.3 CLIENT ORGANIZATIONS AND PROJECT MANAGEMENT

It is well recognized and documented that such an *active* approach by clients towards the management of the construction process can have substantial positive (i.e. *functional* or *constructive*) or negative (i.e. *dysfunctional* or *destructive*) effects upon the achievement of project-specific objectives. This interesting perspective can be theoretically underpinned from studies that have been undertaken by Bresnen and Haslam in 1991 and subsequently by Kometa and his fellow researchers in 1994,

which set out to investigate the influence of clients upon construction project outcomes.

In their study examining the attributes and project management practices of construction industry clients, Bresnen and Haslam (1991) concluded that client *experience* has an important impact upon the quality of the many decisions that are made during the construction process and that strategic decisions are often internally driven by the client as opposed to being project-based. Similar conclusions were drawn by Kometa (1994) and his contemporaries, who completed a more in-depth study of the *organizational attributes* of construction industry clients and their influence on project consultants' performance. They in turn observed that certain client organizational attributes could have significant effects upon the achievement of project-specific objectives. In fact, Kometa and his associates' study identified no fewer than ten client-related attributes and forty-seven sub-attributes that could positively or negatively influence project consultants' performance and construction project outcomes.

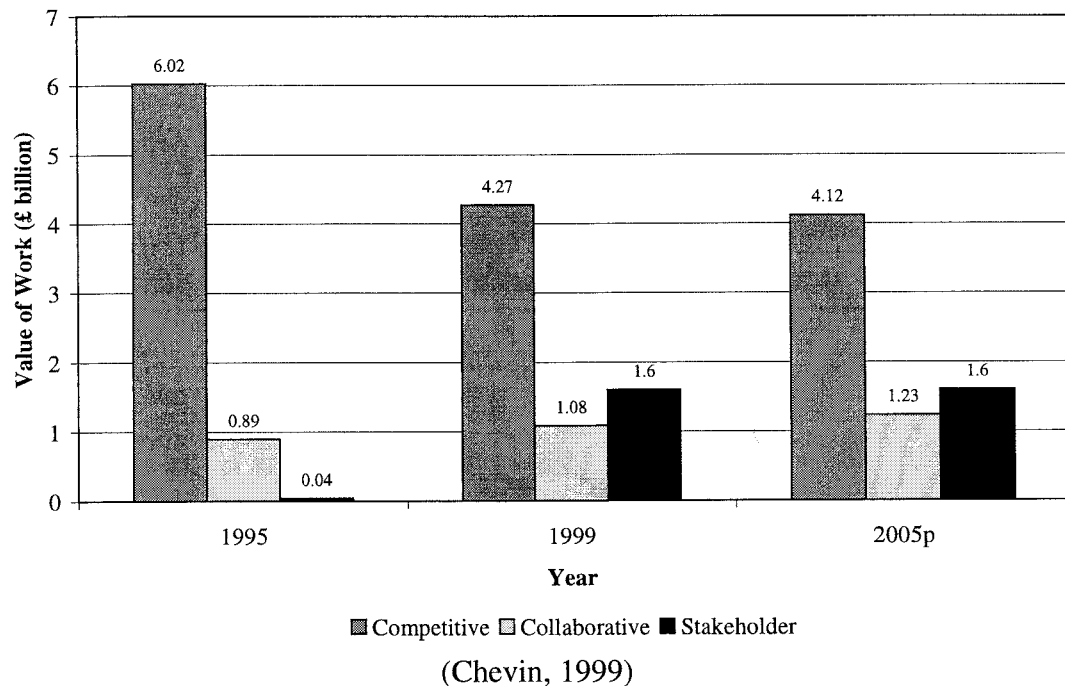
In practice, however, construction industry clients do not always choose to embrace such an active approach towards the management of the construction process. This observation can be confirmed by a fairly recent study that has attempted to examine clients' current and expected trends in construction procurement strategies, including their approach and attitude towards contracting firms (Chevin, 1999). Although *competitive tendering*<sup>1</sup> is expected to remain the dominant procurement strategy for the foreseeable future, the survey results clearly indicate that *collaborative*<sup>2</sup> and *stakeholder*<sup>3</sup> procurement strategies will gradually increase in popularity among UK construction industry clients. A summary of these results is illustrated below in Figure 3.1 on page 49.

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<sup>1</sup> Competitive forms of contract include traditional main contracting, design and build and management contracting.

<sup>2</sup> Collaborative forms of contract include partnering and negotiated arrangements.

<sup>3</sup> Stakeholder forms of contract include private finance initiative work, public-private partnerships and prime contracting.

**Figure 3.1 Trends in Building Procurement Strategies**

Many explanations can be made for this client-based industrial development, including the reduction in unjustified contractors' claims and unexpected litigation costs. However, irrespective of such possible explanations, the fact of the matter is that certain categories of construction industry client have chosen to become synonymous with *passive* observation in regard to the initiation and governance of the highly complex, dynamic and interactive construction process (Latham, 1993). Ironically, this perspective by Sir Michael Latham contradicts his more recent empirically-derived proposition regarding the nature of the *active* relationship that should ideally exist between clients and the UK construction industry.

There are three probable explanations for this paradox. Firstly, because there are many different types or categories of construction industry client – remembering that each client is unique in terms of their background, experience and requirements – altogether they bring to the construction process a series of distinct organizational attributes (see Bresnen and Haslam, 1991; Kometa *et al.*, 1994 for further information regarding client organizational attributes). In reality, however, it is these

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<sup>p</sup> Provisional

distinct organizational attributes that frustrate the construction industry's capacity to adopt a standardized operating methodology with clients *per se* during the construction process. And, as will be discussed later in Section 3.7 Classification of Client Organization Systems on page 70, these organizational attributes are actually founded within the broad spectrum of structural, operational and experiential differences that exist because of the distinct nature of construction industry clients themselves.

Secondly, because of the antipathetic disposition of the construction industry towards the centrally-based decision-making role of clients, there exists a strong aversion to or cultural opposition towards their potential to influence or manage the construction process by those construction-related organizations that are typically bound by the contracting system. Unfortunately, the intensity of this natural opposition towards clients has gradually increased and stabilized to a maximum over recent decades. Two possible explanations for this phenomenon exist: firstly, the construction industry's inherent indifference towards its clients; and secondly, the normalization of the construction industry towards a culture of dysfunctional social relationships, that so often lead to inter-organizational conflict and arduous litigation.

The third and final explanation for Latham's paradox is focused around the ability of construction industry clients to suppress or limit their potential to influence the construction process both directly and indirectly. This is because of the various standardized and alternative procurement strategies that have evolved during the last century. Clients are able to achieve this underlying aim by purposefully refining the existing conditions of construction contracts in order to solve adversarial problems. This flexibility towards expressed and implied contractual requirements and obligations has regrettably exacerbated the construction industry's aversion to its clients. Having assessed their needs and decided upon acceptable levels of project risk and uncertainty, clients are often happy to allocate such risk and uncertainty to those construction-related organizations that are least able to manage, estimate and financially support them. This inevitably leads to an increased level of animosity and distrust towards construction industry clients by those construction-related organizations that are bound by the contracting system under such difficult and onerous contractual obligations.

### 3.4 CLIENT ORGANIZATIONAL ATTRIBUTES

In waiving the debate surrounding the nature and appropriateness of the systems adopted by clients in order to manage the construction process, Bresnen and Haslam (1991) and Kometa *et al.* (1994) have clearly demonstrated that certain client organizational attributes can have significant positive (i.e. *functional* or *constructive*) and negative (i.e. *dysfunctional* or *destructive*) effects upon the achievement of project-specific objectives. A summary of the client organizational attributes that have been described by Bresnen and Haslam and Kometa and his colleagues are illustrated below in Table 3.1 to Table 3.4 (on pages 52 to 54 respectively).

Valuable though Bresnen and Haslam's and Kometa *et al.*'s research is in highlighting the impact of client organizational attributes and other factors upon construction project outcomes, it perhaps presents a restricted view of the entire picture that is potentially available regarding the impact of organizational attributes and other factors upon the construction process itself. This is because Bresnen and Haslam and Kometa *et al.* did not elaborate upon the significance of their findings with respect to the development of a theoretical appreciation of how such organizational attributes could influence the social context of the construction process. In other words, for these client organizational attributes to have significantly influenced construction project performance and outcomes, they must have similarly influenced the social relationships that existed between construction industry clients and construction-related organizations. Furthermore, this notion can be developed and theoretically applied to each construction-related organization that is typically bound by the capitalist-based attractiveness of the UK contracting system. For example, the organizational attributes of construction-related organizations must be capable of positively or negatively influencing their own project-based performance as well as the overall construction project outcomes. Most importantly, however, they must also be capable of influencing the nature of the social or inter-organizational relationships that typically exist between construction-related organizations and clients during the construction process.

Table 3.1

## Client-related Attributes and Sub-attributes that Influence Project Consultants' Performance

<b>Financial stability</b> Current assets Creditworthiness Current liabilities	<b>Past performance</b> Successful projects Unsuccessful projects Cost overrun Time overrun Quality achieved	<b>Current market conditions</b> Economic boom Economic recession
<b>Project feasibility</b> Feasibility study Project priorities Personnel appointment Site condition	<b>Client characteristics</b> Type of client Size of client Structure Communication channels Legal history	<b>Project characteristics</b> Type of project Size of project Cost of project Project complexity Objectives and sub-objectives Time Location
<b>Quality of management</b> Project management Qualifications of personnel Project auditing Quality assurance	<b>Client's duty</b> Project definition and formulation Project finance Contracting Legal agreements Human factors Project implementation and management Politics and social factors Schedule urgency Schedule duration Planning	<b>Past experience</b> Projects completed Construction activities Types of project Experience of personnel
<b>Organizational quality of client</b> Organization of project team Co-ordination of project interphase Allocation of project responsibilities		

(Kometa *et al.*, 1994: 434)

**Table 3.2      Type of Client Organization**

<b>Client Type</b>	<b>n</b>	<b>%</b>
Government department	1	1
Local authority	30	22
Statutory authority	9	7
Nationalized industry	1	1
Development corporation	2	1
Housing association	4	3
Property developer	27	20
Company	62	45
Other	2	1
<b>Total</b>	<b>138</b>	<b>100</b>

(Bresnen and Haslam, 1991: 330)

**Table 3.3      Type of Construction Project**

<b>Project Type</b>	<b>n</b>	<b>%</b>
Industrial (factories/warehousing)	23	17
Offices (industry/commercial)	38	28
Commercial/retail	26	19
Housing	23	17
Education/training	10	7
Civic	8	6
Health	6	4
Transport facilities	4	3
<b>Total</b>	<b>138</b>	<b>100</b>

(Bresnen and Haslam, 1991: 330)



**Table 3.4      Level of Client Organization Experience**

<b>Project Status</b>	<b>n</b>	<b>%</b>
First ever	16	12
Few before	19	14
Regular small number	31	22
Large number	60	43
Entire workload	12	9
<b>Total</b>	<b>138</b>	<b>100</b>

(Bresnen and Haslam, 1991: 331)

Consequently, it can be concluded and subsequently hypothesized from the above important inferences, that the organizational attributes of clients and construction-related organizations can positively and negatively influence the nature and social context of the construction process in the UK construction industry. The unique characteristics and extent to which these organizational attributes affect the social relations of the construction process will be discussed and examined in greater detail later in this thesis. Indeed, the correlation of organizational attributes to the presence of dysfunctional construction industry inter-organizational relationships or inter-organizational conflict during the construction process is an important objective of this Ph.D. research project.

### 3.5 CLIENT ORGANIZATIONS AND THE CONSTRUCTION INDUSTRY

It is evident from the number of government and industrial sponsored reports that have been published over recent decades that anxieties do exist regarding the construction industry's approach and attitude towards its working and social relationship with construction industry clients (e.g. Egan, 1998; Higgin and Jessop, 1965; Latham, 1994; Ministry of Public Buildings and Works, 1964; Ministry of Works, 1962; Ministry of Works: Central Council for Works and Buildings, 1944; Tavistock Institute, 1966). Although comprehensive and invaluable, these worthy reports have generally been undertaken and written against a background of national economic decline and intense arbitration and litigation within the UK construction industry. It is therefore not surprising that their observations and recommendations

have been focused around the economic, political and structural factors affecting the industry. Little or no attempt has been made in these honourable reports to study the social arrangements in the UK construction industry. What is more, the authors and sponsors of these reports have consistently disregarded the need to identify and analyse the organizational attributes and other factors that influence the social relationships between construction industry clients and those construction-related organizations that are typically bound by the UK contracting system. This includes the most recently published Latham and Egan reports.

### **3.5.1 Latham Report**

In July 1994, Sir Michael Latham published his review of the procurement and contractual arrangements in the UK construction industry. The primary aim of this report was to make recommendations to Government, the construction industry and its clients regarding issues of structural and operational reform in order to reduce construction industry conflict and associated litigation. The secondary aim was to help clients obtain the high-quality building projects that they normally aspire to by encouraging the construction industry to improve its productivity and its degree of competitiveness: thereby achieving better value-for-money for clients.

During the extremely short and pre-determined review and compilation periods, Latham was required to address the report's aims by considering the following comprehensive terms of reference:

1. The current procurement and contractual arrangements in the UK construction industry.
2. The current roles, responsibilities and performance of the participants involved in the construction process, including clients.

In addition to these demanding aims and comprehensive terms of reference, the five funding bodies who commissioned the industrial review, viz. the Department of the Environment, the Construction Industry Council, the Construction Industry Employers Council and the Specialist Engineering Contractors' Group, also expected Latham to give particular regard to the following factors:

1. The processes by which clients' requirements are established and presented to professional design consultants and specialist building firms.
2. The processes by which building projects are commissioned, constructed and completed, i.e. the methods of design and construction procurement.
3. The processes and responsibilities for the production, management and development of building design.
4. The organization and management of the construction process.
5. The contractual issues and methods of dispute avoidance and resolution during the construction process.

In his report, Latham advocated a better deal for construction industry clients by stating: "Implementation begins with clients. Clients are at the core of the process and their needs must be met by the industry" (Latham, 1994: 3). As a result, Latham recommended and encouraged radical improvements to the organizational structure and operational performance of the UK construction industry. In particular, he addressed and criticized the construction industry's poor past performance record in the area of industrial productivity and subsequently demanded a 30% reduction in total construction costs by the year 2000. He further indicated that clients should expect improved on-site performance from contractors or building firms; better value-for-money from their professional design and cost consultants; high-quality, low-cost buildings; and fair, non-antagonistic social relationships between all parties (i.e. social agencies or organizations) that are involved in the construction process.

At the time of its publication, and for some years afterwards, Sir Michael Latham's report was hailed as the definitive account of the UK construction industry and its inherent structural and operational problems (Ive, 1995). But, not surprisingly, it also sparked vigorous and lengthy debates within and outside the industry due to its controversial client-based recommendations (Ive, 1995). In general, construction industry clients were happy with the content of the report and endorsed the cost-saving proposals made by Latham wholeheartedly. Unfortunately, the opposite was true of the professional design and cost consultants and contractors or building firms working within the industry. They rebuked its recommendations and their potential benefits almost immediately, advocating the inability of the construction industry to

achieve them in a climate of reduced economic workload, low industrial investment, negative profit margins and mutual distrust.

There are many possible reasons why the Latham report has not completely changed or revolutionized the way in which the UK construction industry is structurally organized and operationally performs in practice. One explanation could simply be that Sir Michael Latham was unable to satisfy all of the requirements of the report's primary and secondary aims, given the substantial and onerous constraints that were dictated by the report's numerous sponsors. Latham would have also found it difficult to adequately address the complex and intricate requirements of the industrial review to sufficient depth, given the extremely short pre-determined review and compilation periods that were also dictated by the report's numerous sponsors. Another possible explanation could simply be that the ethos or spirit of the Latham report was predominantly focused towards the distinct needs of construction industry clients. The report, unfortunately, did not discuss in sufficient depth the complex and divergent needs of the construction-related organizations that generally operate within the UK construction industry in order to serve its clients.

In any event it is unlikely that Sir Michael Latham would have been able to direct his attention on the social arrangements in the UK construction industry, as opposed to, or in addition to, the procurement and contractual arrangements. This is because at the time of the report's undertaking the UK construction industry was enduring the negative effects of a national and global economic recession. A study examining the social framework of the UK construction industry would therefore not have been considered or even regarded as an essential aspect of Latham's investigation. Instead, it was the consequences of and the remedies for industrial *fragmentation* that Sir Michael Latham principally investigated and discussed during his study.

Despite the imperfections of Sir Michael Latham's review of the UK construction industry, his report did acknowledge and discuss the confrontational ethos that abounds the construction process. Latham's awareness of such industrial conflict resulted in the identification of thirty radical recommendations to address the many problems that were identified during the report's consultation process. Government, the construction industry and its clients subsequently formed the Construction

Industry Board (CIB) to investigate and implement the majority of Sir Michael Latham's recommendations. The CIB successfully achieved its objectives by forming a series of Working Groups to oversee the individual recommendations made by Latham. Working Group 11 (WG 11) was invited to investigate *productivity* and *cost reduction* issues related to Latham's infamous demand for a 30% reduction in total construction costs by the year 2000. Accordingly, the final report produced by WG 11 concluded that the solutions to the UK construction industry's problems were not simple. Indeed, in order to improve operational productivity, WG 11 proposed that the UK construction industry would need to implement *lean construction* theories during the construction process (see Green, 1999; Howell and Ballard, 1999; Womack and Jones, 1996 for further information regarding lean manufacturing theories). As a consequence of WG 11's controversial recommendations, the government decided to commission a further study examining the application of *lean manufacturing*<sup>1</sup> theories or *lean thinking* to the UK construction industry. This study has since become widely known as the Egan report.

### 3.5.2 Egan Report

In 1998 the Construction Task Force, chaired by Sir John Egan, published its report entitled 'Rethinking Construction.' The Deputy Prime Minister, John Prescott, pioneered the formation of the Construction Task Force and subsequently requested a comprehensive review of the UK construction industry. His action was in response to the overwhelming concerns that were being expressed from within and outside the UK construction industry regarding the industry's under-performance in terms of satisfying both its own needs and those of its clients. Indeed, at the time of the Construction Task Force's formation, there was grave concern that the UK construction industry as a whole was drastically under-achieving and that far too

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<sup>1</sup> Lean manufacturing has three indivisible and interdependent elements, viz. flexibility, quality and minimum waste. Flexibility is attained by arranging the production process into an organized group or cell, and by the use of a flexible and multi-skilled workforce. Minimum waste is achieved by the application of just-in-time (JIT) practice. JIT is a concomitant of cellular production and refers to the efficient and effective organization of the production system and buyer ↔ supplier relations between firms (Gattorna, 1998).

many of its prestigious clients were contemplating the future employment of overseas construction-related firms as opposed to UK-based firms.

Consequently, the perspective from which the Egan review was commissioned and subsequently undertaken was somewhat different to that of the earlier Latham review. The primary aim of the Egan review was to identify the opportunities available to the UK construction industry for the improvement of its operational productivity. The secondary aim was to identify the latent opportunities available to the construction industry to enable it to become more responsive to client needs and requirements.

In addition to these carefully defined aims, the terms of reference for the Construction Task Force's investigation were to advise the Deputy Prime Minister of the opportunities available to the UK construction industry in order to improve its efficiency and effectiveness from the clients' perspective. Although Sir John Egan was entrusted with the responsibility of directing the Construction Task Force during this seminal study, to ensure that the investigation was conducted appropriately, Prescott stipulated that the Construction Task Force should complete the following assignments (Egan, 1998):

1. To recommend the opportunities that are potentially available in order to achieve more efficient construction in terms of quality, customer satisfaction, timeliness delivery and value-for-money.
2. To quantify the potential opportunities that are available in order to improve the efficiency and quality of delivery of construction-related work through the derivation and application of relevant and acceptable performance indicators.
3. To reinforce the impetus and highlight the potential benefits that could be gained as a result of *structural* and *operational* change within a highly competitive industrial marketplace.
4. To examine the scope for improving the efficiency and quality of delivery of construction-related work through the implementation of innovative products and processes.
5. To identify key or demonstration projects that would clearly illustrate the potential benefits that could be gained through the implementation of best construction-related practice.

Sir John Egan's knowledge and prior experience of manufacturing-based industries clearly informed and underpinned the perspective from which the Construction Task Force completed its investigation of the UK construction industry. This approach was in complete contrast to that of the earlier industrial review that was undertaken by Sir Michael Latham. One reason for this was that Latham, who had previously established a political career for himself, did not possess such relevant industrial-related experience and was therefore unable to conduct his investigation with the same degree of informed knowledge. Latham also openly declared in his report that he had conducted his industrial review as an independent but friendly observer. Conversely, Egan and the other members of the Construction Task Force had gained experience of radical change and improvements in other manufacturing-based industrial sectors of the UK economy. They therefore sought to conduct their investigation of the UK construction industry by effectively functioning as highly qualified management consultants. And as an experienced construction industry client himself, Egan had also gained appropriate knowledge and expertise of delivering improvements in quality and efficiency within his own construction programme.

During the review process, the Construction Task Force was motivated by its strong belief that the UK construction industry was more than capable of delivering the most difficult and innovative construction projects on time, within budget and to a high degree of technical standard. With this conviction in mind, the Construction Task Force identified five *key drivers of change* that would set the agenda for the construction industry's transformation into an efficient and effective manufacturing and professional service industry. These key drivers of change were derived from the Construction Task Force's comparative observations of the construction industry and other manufacturing-based industries in the UK. The five key drivers of change, or the fundamental principles of commercial ideology that together provide a model for improving the efficiency and quality of construction in the UK, can be outlined as follows:

1. The need to have committed team and industrial leadership and the determination to raise industrial performance standards.
2. The need to focus on the customer or consumer, i.e. the construction industry client, and their individual requirements.
3. The need to integrate the construction process and the construction team around the product, i.e. the building project.
4. The need to implement and develop a quality-driven business agenda and to establish an industrial culture focused on quality.
5. The need to recognize and formulate a sustained commitment to people, training, research and development.

In its highly revered report, the Construction Task Force asserted that if the UK construction industry proposed to achieve these idealistic targets, then it would be necessary for the industry to enforce a series of radical changes to the processes through which it delivers its projects. It recommended that these changes should be explicit and transparent to all parties involved in the construction process, viz. consumers or clients and the UK construction industry itself. By concentrating on the individual needs of the consumer, i.e. the cost, quality and functionality of the finished product and whether or not it is delivered safely and on time, the Construction Task Force was able to suggest that it is possible to view construction as a highly integrated production process. Indeed, by formulating such a novel perspective, the Construction Task Force was then able to comprehend construction as an integrated process through which the needs of the consumer are delivered by the production of an end-product. This resulted in the Construction Task Force recommending that the overall construction or integrated production process could be subdivided into the following complementary and inter-related elements or sub-processes:

1. Product development.
2. Project implementation.
3. Partnering the supply chain.
4. Production of components.



The rationale behind the Construction Task Force's development of an integrated production process is that the separate and distinct sub-processes through which construction projects are planned, designed and constructed presently restricts the efficiency of project delivery. The following statement made by the Construction Task Force confirms this supposition:

The conventional construction process is generally sequential because it reflects the input of designers, constructors and key suppliers. This process may well minimise the risk to constructors by defining precisely, through specifications and contracts, what the next company in the process will do. Unfortunately, it is less clear that this strategy protects the clients and it often acts as an effective barrier to using the skills and knowledge of suppliers and constructors effectively in the planning of the projects.

(Egan, 1998: 19)

These separate but sequential activities that together form the conventional construction process reflect the fragmented structure of the UK construction industry as discussed earlier in Section 2.6 Fragmentation in the Construction Industry on page 32. In addition, they also sustain and compound the construction industry's contractual and confrontational culture that was discussed above in Section 2.9 Social Conflict and the Contracting System on page 37. The Construction Task Force's quadripartite model of the integrated production process therefore attempts to explain how sustained improvements to the productivity of the UK construction industry can be delivered. The model illustrates that Sir John Egan's demand for the elimination of waste and the increase in value for the consumer can be achieved by the application of appropriate lean manufacturing techniques within and between its four key elements or components. As few products or services are provided by one construction-related organization alone, the Construction Task Force has further indicated that it is necessary to pursue the removal of waste throughout the entire set of activities across all firms involved in the joint delivery of the construction project. What is more, Egan has repeatedly stated that the successful removal of wasted time and effort from the construction process could represent the greatest opportunity for performance improvement in the UK construction industry.

Although the Egan report did initially challenge the conventional tenor of the UK construction industry, it has since become extremely popular and highly regarded by government, construction industry clients and the construction industry itself. In essence, the report has attempted to formulate and describe an agenda for the improvement of the construction industry's operational performance and *inter-organizational* relationships. It has achieved this objective by carefully describing the many benefits that could be gained and the resultant implications of construction becoming an effective manufacturing process, and more importantly, becoming an efficient manufacturing industry. In point of fact, this agenda was based on the lean manufacturing techniques that have been successfully employed by leading manufacturing organizations such as Toyota and Jaguar/Ford in the automobile industry and Boeing and British Aerospace in the aircraft industry.

Without doubt, when compared with the earlier Latham report, the Egan report has made the greatest impression on the UK construction industry. The number of government and industrial sponsored initiatives that are currently operational within the UK construction industry can confirm this statement. In practice, these radical initiatives are supported by a network of professional consultants, clients and construction-related organizations that are committed to improving the delivery of construction projects and the performance of construction companies by applying the recommendations that were made by the Construction Task Force. The network is collaborative and is open to all clients and construction-related organizations that are able to demonstrate a commitment to the following basic principles:

1. To undertake demonstration projects that will advance the knowledge and practice of construction best practice.
2. To focus on the specific needs and requirements of clients from every aspect of the construction process.
3. To develop a culture of trust during the construction process and throughout the supply chain by encouraging respect and valuing the contributions of all participants.
4. To adequately train all staff and to provide them with conditions of employment that encourages quality and efficiency.
5. To measure and benchmark the performance of demonstration projects in order to extend and share the results with the wider construction industry.

6. To extend and share the benefits of improved performance to all clients.

The above six principles clearly illustrate how the Egan report has encouraged the UK construction industry to embrace a movement towards radical change. It has primarily achieved this objective by helping to create a new culture that is focused on the construction industry's drive for improved productivity, whilst discouraging the adverse effects of inter-organizational conflict.

Nonetheless, it can be argued that the highly praised *Eganite* ideology is somewhat flawed. Although the remit of the Egan report was to improve the profitability and performance of the UK construction industry by integrating the construction or production processes, it unfortunately does not say very much about how the different organizations that deliver construction projects could work together more effectively and harmoniously. In other words, the Construction Task Force did not consider the industry's social relations of production during their investigation, i.e. the network of social relationships that exist between construction-related firms.

With reference to Ball's (1980; Ball, 1988) and Hillebrandt's (1985; 1988) economic theories of the UK construction industry, Chapter 2 chronicled the need to recognize the presence and understand the nature of the social relations of production that exist between construction-related organizations during the construction process. What is more, it was further demonstrated in Chapter 2 that the nature of the social conflicts that exist between the firms (or organizations) operating within the contracting system is complex and contingent upon their network of social relationships. By choosing to ignore the social relations of production, Sir John Egan and the Construction Task Force were able to disregard the adverse effects that social conflict can have upon the profitability and productivity of the UK construction industry. Although this strategy did make the process of completing their investigation of the UK construction industry much easier, it unfortunately limited the value and scope of their conclusions and recommendations by unintentionally overlooking construction industry inter-organizational relationships.

### 3.5.3 Implications of the Latham and Egan Reports

The decision to ignore the social relations of production in the UK construction industry was not made by Sir John Egan and the Construction Task Force alone. As a matter of fact, this misguided strategic decision has repeatedly been made over the years by numerous influential report authors (Holmen *et al.*, 2002). Unfortunately, this has led to a more serious imperfection arising within these reports. By carefully recapitulating the key themes and findings of both the Latham (1994) and Egan (1998) reports, it is possible to illustrate the process by which this imperfection can be subsequently derived.

The Latham report was mainly focused around the consequences of the UK construction industry's fragmented structure. The report carefully identified and described the many factors that help to cultivate adversarial inter-organizational relationships and that also help to induce undesirable construction project outcomes. This broad focus naturally guided Sir Michael Latham to conclude his report by making a series of original recommendations that would inform and help the UK construction industry in its quest to become more effective and less confrontational. The key theme of Latham's recommendations was the need to place the client at the centre or core of the fragmented construction process, whilst at the same time, engendering a spirit of effective teamwork between all of the participants. Latham believed that by doing so, the UK construction industry could become a more effective instrument to help its clients obtain the high quality building projects that they aspire and so rightly deserve.

Sir John Egan and the Construction Task Force, however, took Sir Michael Latham's empirically-based recommendations one stage further. By comparing and contrasting the UK construction industry with other manufacturing-based industrial sectors of the national economy, they were able to present a bold vision of how the construction industry should be *structurally* and *operationally* organized in order to deliver its projects more efficiently and more effectively. This involved Sir John Egan and the Construction Task Force refuting the long-standing argument that each project is unique and that the UK construction industry is unable to standardize the products and processes that are used to construct it. The Egan report was therefore

focused around the identification and description of innovative initiatives that could potentially resolve the under-performance of the UK construction industry and that could also enable the industry to satisfy both its own specific needs and those of its varied clients.

This narrow focus inevitably led Egan and the other members of the Construction Task Force to consider what aspects of the construction process could be improved in order to eliminate waste and to increase value-for-money for clients. They concluded that the UK construction industry would need to make a series of radical and innovative improvements throughout the fragmented construction process. By doing so, Sir John Egan and the Construction Task Force strongly believed that potential improvements to the operational productivity of the construction process could be established and maintained for the benefit of all clients, and more importantly, for the benefit of the construction industry itself.

Although the recommendations that have been made by Sir Michael Latham and Sir John Egan have been widely applauded by both industrialists and academics alike, very little attention has subsequently been given to the theoretical implications that underpin these government-backed reports. Prior to the commencement of any research-based activity, it is important that the nature and context of the phenomenon that is to be investigated is clearly understood and ethnographically appreciated. Any study that is proposing to examine the distinctive attributes and resultant outcomes of the social relationships that exist between construction-related organizations during the construction process must, therefore, initially consider the nature and context of the construction process, i.e. the *construction project organization*. This important methodological statement is equally true for both the Latham and Egan reports, as well as for this particular investigation.

The study of inter-organizational relationships is without doubt an aspect of social science (Alter and Hage, 1993). However, previous studies that have examined the nature and context of inter-organizational relationships in the construction process have rarely attempted to relate their work to the established theoretical frameworks that exist in sociology. The contention of this particular study is that although systems-based theories can help to describe or model the fragmented nature of the

construction process, they are unable to describe or model the social relationships that exist during the construction process. As this doctoral research project therefore aims to investigate the constructs of inter-organizational conflict during the design development and production processes, it is apparent that a methodological approach that respects both systems and sociological theories should be adopted when initially conceptualizing the distinctive nature of the fragmented construction process that is found in the UK construction industry.

### 3.6 DEFINITION OF CLIENT ORGANIZATION SYSTEMS

The importance of construction industry clients to the construction process cannot be over emphasized. Latham (1994) and Egan (1998) have both repeatedly stated that clients form the basis upon which the whole construction process stands and therefore succeeds. As construction clients have a basic need for buildings, which have an associated demand for construction-related activity, they are ultimately responsible for initiating the construction process. But even though clients are critical components of the construction process, they quite often do not assume a prominent role during the design development and fabrication of their own building projects.

The project management role that clients often choose to play during their building projects, and the nature of the social relationships that they generally develop with construction-related organizations while undertaking this role, can vary considerably. However, irrespective of whatever social relationships are established, clients inevitably become part of their own construction project's organization. This unique construction project organizational structure has been defined by Cherns and Bryant (1984) as a *temporary multi-organization* (TMO). The implications of temporary multi-organizations to this study will be discussed in more detail later in this chapter in Section 3.8 Construction Project Organization Systems on page 75.

According to Gameson (1992; 1996), the attribute that primarily influences the type of social relationship that typically exists between construction industry clients and construction-related organizations is the level of the client's previous experience and

involvement with building projects. Because of research that has been undertaken by Bresnen and Haslam (1991) and Kometa *et al.* (1994), it has been possible to deduce that the organizational attributes of clients can also positively and negatively affect the social relationships that exist during the construction process (see Section 3.4 Client Organizational Attributes on page 51 for more information regarding this deduction). This opinion is confirmed by Abbot (1988), who has stated that the differences and unique attributes of clients can indeed affect their social relationships with their professional consultants.

Because of the complex and diverse nature of clients, it is extremely difficult to produce a concise but succinct definition that accurately describes them, whilst at the same time, acknowledging the capacity of clients to influence their own social relationships with their professional consultants and specialist building contractors. For example, the work of the Tavistock Institute clearly illustrates the complex yet intricate nature of trying to define what is meant by construction industry clients:

In the overwhelming majority of cases, the client is not an individual. 'The client' is a complex system of differing interests and 'the client's' relationship is seldom with a single member of the building industry. Even if initiated through individuals, the relationship rapidly becomes a conference between groups of both sides.

The client system may be an industrial or commercial organization, a hospital management committee, an education committee, or one of many other forms of organizational system. These client systems, as within the system of the building industry, are made up of both congruent and competing sets of understandings, values and objectives. Much design and even building work has proved to be abortive because unresolved or unrecognized conflicts of interest or objectives within the client system have only come to light after the building process has been initiated.

(Tavistock Institute, 1966: 39)

This statement illustrates the tendency among a number of researchers to define a client as a *client* or an *organizational system*. By choosing to define construction industry clients as an organizational system, it is possible for researchers to then fit the many different types of client into the organization-system model that is regularly

used to represent the fragmented nature of the construction process (NB the *organization-system model* of the construction process will be discussed in more detail in Section 3.8 Construction Project Organization Systems on page 75). The organization-system approach also recognizes the fact that clients are a complex system of indistinguishable and often-conflicting aims and objectives, and that clients generally develop numerous social relationships with their professional consultants and specialist building contractors. However, by choosing to adopt such an approach, researchers often ignore the potential to acknowledge and apply the sociological theories that can help to describe and model the social relationships that exist between construction industry clients or the *client system* and construction-related organizations or the *project organization* during the construction process.

It has already been demonstrated above in Section 3.4 Client Organizational Attributes of this chapter that the organizational attributes of construction industry clients can positively and negatively influence the nature and social context of the construction process. The ability of clients to influence the nature of their social relationships therefore leads to their subsequent ability to influence the occurrence of social conflict during the overall construction process. As this doctoral investigation is attempting to study the dysfunctional social relationships that frequently exist during the design and fabrication sub-processes, and to analyse the latent variables that so often influence its manifestation, it is apparent that a classification framework is therefore needed for clients that recognizes the following important points:

1. The complex, divergent and fluctuating nature of construction industry clients.
2. The ability of construction industry clients to influence their own social relationships with their professional design and cost consultants and specialist building contractors.
3. The separate but sequential construction-related activities that together form the fragmented nature of the conventional construction process, i.e. the design development and fabrication sub-processes.



### 3.7 CLASSIFICATION OF CLIENT ORGANIZATION SYSTEMS

Historically, construction industry clients have been categorized into two broad groups according to their source of project funding, viz. *public-* or *private-sector* funding. Unfortunately, as developments in the public sector have fragmented this client base, the public sector has now become a less dominant client than it used to be. Over the years, this has resulted in extensive public-sector capital works programmes, such as local authority house-building, being steadily reduced to a minimum level. Other forms of public-sector work, such as hospitals, schools, roads and bridges, are now partly funded by private investment companies or are completely funded, designed, constructed, operated and maintained by consortiums that generally consist of several privatized business companies.

According to Walker (1996) and Flanagan and Norman (1993), construction industry clients in the private sector are much more diverse and complicated than their public sector counterparts. However, an important characteristic of private-sector clients is their inherent ability to be further divided into two groups, viz. *individual* or *corporate* clients. Generally speaking, individual clients are the exception for most construction projects, particularly where the client is to own and occupy the newly completed building. But although the idea of individual clients can initially seem relatively simple and straightforward in nature, they can actually be much more complicated than first expected.

In his acclaimed textbook about project management in construction, Walker has provided a simple explanation of how this situation can occur in practice. He cites the example of a newly married couple that wants to have a new house built in order for them to live in. Walker explains that there should be a direct social relationship established between the client, i.e. the married couple, and the leader of the project team, i.e. the architect, and that communication of information between the two parties should therefore be straightforward, i.e. without complications or conflict. However, he continues to say that this is not necessarily the case, because even at this level, it is still relatively difficult for the architect to accurately decide whether the husband or the wife is the client. Potentially, this situation could lead to a

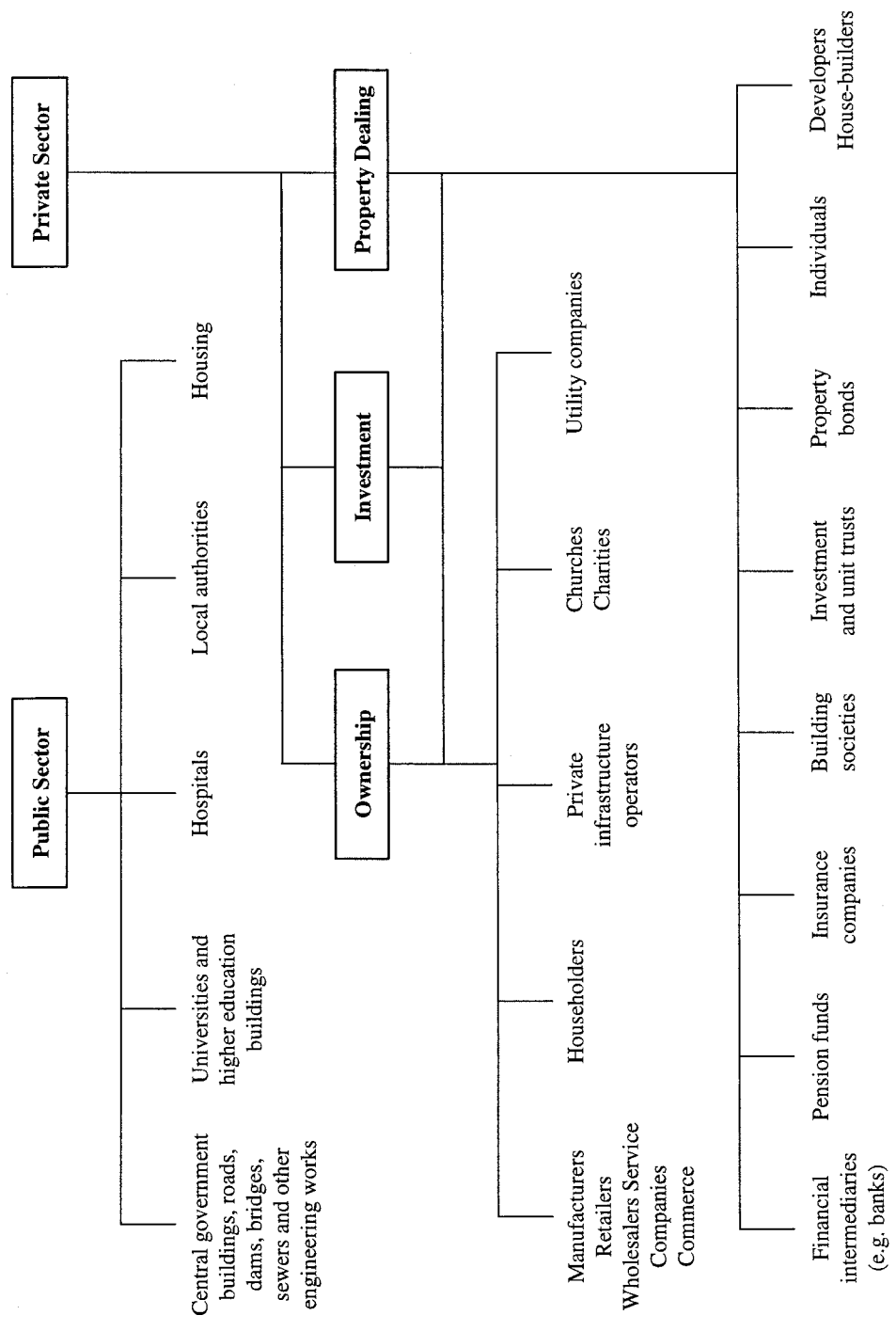
conflict of interest arising between the architect and the married couple and also between the married couple themselves.

Corporate clients, however, are much more complex in nature than individual private-sector clients. Corporate clients, as their name suggests, may be small property developers or large, multi-national retail, commercial or industrial organizations. Quite often, corporate clients are extremely well-informed, having gained substantial experience of the construction process through their own construction programmes. And sometimes, these clients have emerged as pioneers of the construction process, as they have introduced new and innovative methods and techniques for improving construction-related procurement and site-based performance. However, the opposite is also true, as some corporate clients may only be involved in construction-related activity on a single occasion. Consequently, such corporate clients usually have no or very limited knowledge of the construction process and subsequently heavily rely upon their consultants and specialist building contractors for professional construction-related advice and guidance.

This method for broadly categorizing construction industry clients into one of two distinct groups can be termed a bifurcated classification system. In essence, it is a simplified grouping technique that enables researchers to effectively identify and categorize the basic types of client. The bifurcated client classification system is illustrated below in Figure 3.2 on page 72.

Unfortunately, the complex and varied nature of clients and building procurement strategies, together with the dynamic nature of the UK construction industry, has helped to gradually make the bifurcated classification system redundant. This phenomenon has therefore complicated matters for those construction management researchers who are intending to study the UK construction industry and its many varied clients. Regrettably, Walker has tentatively suggested that it is not possible to develop a more sophisticated or detailed classification framework that is of any use when categorizing clients. This particular aspect of Walker's approach towards construction industry clients can be confirmed by the following statement that he has made in his textbook on project management: "Potential clients of the construction

Figure 3.2 Bifurcated Client Classification System



(Flanagan and Norman, 1993: 10)

industry are a too large and varied group for any meaningful detailed classification to be prepared” (Walker, 1996: 83).

Although there may be a certain degree of truth in Walker’s tentative statement, several distinguished researchers have attempted to formulate and utilize a more sophisticated approach than the above bifurcated classification system. For example having considered the outcomes of research that was originally conducted by Higgin and Jessop in 1965 and Nahapiet and Nahapiet in 1985, Masterman and Gameson (1994) were able to establish a more sophisticated client classification system. Their classification system is based upon the following two organizational attributes of construction industry clients:

1. The client’s level of prior construction-related *experience*; and
2. Whether the client is a *primary* or *secondary* constructor.

It comes as no great surprise to discover that Masterman and Gameson have identified past or *prior construction-related experience* as an important organizational attribute when attempting to formulate a more sophisticated client classification system. Bresnen and Haslam (1991) made a similar point in their study that was discussed in Section 3.3 Client Organizations and Project Management on page 47. They concluded that client experience has an important impact upon the quality of the many decisions that are made during the construction process, and that strategic decisions are often internally driven by the client organization as opposed to being project-based and driven by the *project organization* or the *temporary multi-organization*. However, by accepting and selectively utilizing the outcomes of research that was published by the Nahapiets, Masterman and Gameson were able to take Bresnen and Haslam’s work one stage further. They subsequently recognized that prior construction-related experience is an organizational attribute that must be carefully considered when attempting to formulate a client classification system. Accordingly, this resulted in Masterman and Gameson identifying two distinct types or levels of a client’s prior construction-related experience. The construction industry client’s level of prior construction-related experience can be defined as follows:

1. **Experienced constructors** – recent and relevant experience of constructing certain types of buildings, with established access to construction expertise either in-house or externally.
2. **Inexperienced constructors** – no recent and relevant experience of constructing buildings, with no established access to construction expertise.

(Masterman and Gameson, 1994: 80)

When considering the organizational attributes of construction industry clients together, it is apparent that four alternative types or categories of client can be produced. These types or categories of client can be listed as follows:

1. Primary experienced.
2. Primary inexperienced.
3. Secondary experienced.
4. Secondary inexperienced.

Masterman and Gameson, however, have suggested that only three of the above four types or categories of construction industry client can be successfully utilized during construction management research. Gameson has confirmed this important methodological concern by declaring: “When considering the definitions stated, for primary and inexperienced, it is clear that it would be most unlikely to find a client organization which exhibits such characteristics” (Gameson, 1996: 440). He further explains that a client organization whose main business and primary income is derived from the construction of new buildings is very unlikely to have no relevant and recent access to professional construction-related expertise and guidance. Indeed, this point of fact has been demonstrated by case study material that was collected and published by Herb and Janine Nahapiet in 1985. Their research has clearly illustrated that there is little or no evidence to substantiate the claim that client organizations can be classified as primary inexperienced. Consequently, Masterman and Gameson have testified of the need to exclude this classification from future research projects. Masterman and Gameson’s declaration will therefore be acknowledged during the process of completing this research project due to the unlikely prospect of locating such clients in the north-eastern region of England.

### 3.8 CONSTRUCTION PROJECT ORGANIZATION SYSTEMS

As already discussed earlier in Section 3.5.3 Implications of the Latham and Egan Reports on page 65, the first stage in any research activity should be to explore and understand the true nature and context of the phenomenon that is to be investigated. For the purposes of this particular investigation, this statement naturally leads to a seemingly simple question being raised: what organization theory best describes and conceptualizes the nature and context of the construction process that is usually found in the UK construction industry? By correctly answering this question, it should be possible for this research project to differentiate itself from other studies – most notably the Latham (1994) and Egan (1998) reports – that seem to have overlooked the dysfunctional social relationships that frequently exist between those construction-related organizations that are normally bound by the contracting system in the UK.

Many construction management theorists have attempted to describe and model the different types of social relationships that generally exist between individuals, groups and organizations during the construction process (e.g. Eccles, 1981a; Gunnarson and Levitt, 1982; Higgin and Jessop, 1965; Tavistock Institute, 1966; Winch, 1985;1989). Not surprisingly, these organizational theories tend to be inconsistent in their approaches towards the study of inter-organizational behaviour (Holmen *et al.*, 2002). Quite often they focus their attention upon organizational structures, environments, technologies and formalizations, as opposed to the networks of social relationships that usually exist between the construction-related organizations (Holmen *et al.*, 2002).

It is inevitable that the social relationships between organizations will vary. In the UK construction industry, for instance, relationships between organizations are often dependent upon the procurement strategies that have been selected by their clients. Masterman has defined building procurement as: “The organizational structure adopted by the client for the management of the design and construction of a building project” (Masterman, 1992: 1). The choice of building procurement strategies that are available to clients of the UK construction industry is extremely wide. Franks (1990) has suggested that selection of the most appropriate building

procurement strategy is largely a matter of determining which performance requirements head the client's list of priorities. He has explained that these priorities might include the following items:

1. Technical and engineering complexities.
2. Aesthetics and prestige.
3. Economy and cost-effectiveness.
4. Time and project delivery.
5. Exceptional size or complexity involving input from numerous sources in order to satisfy several users' requirements.
6. Price certainty at an early stage in the project's design development.
7. Facility for the client to change the design during the project's fabrication stage.

The wide choice of building procurement strategies that are available to construction industry clients is exemplified by the vast array of authors who have attempted to describe and classify them (e.g. Bennett, 1983; Franks, 1990; Hughes, 1992a;b; Masterman, 1992; Walker, 1996). From all of these possibilities, Masterman appears to be the only writer who has simplified the classification of building procurement strategies into three generic categories that directly relate to the critical interaction between the design and fabrication sub-processes. Masterman's classification system also includes the most popular building procurement strategies that are currently used in the UK. Because of these advantageous characteristics, Masterman's categorization of building procurement strategies will therefore be adopted during the process of undertaking this Ph.D. research project. Masterman's classification framework can be outlined as follows:

1. **Separated and co-operative procurement systems** – where the responsibility for the design and construction aspects of the project are the responsibility of separate organizations, e.g. design consultants and contractors, but where variants of the basic system may also be used which enable the contractor to be appointed at an early stage so that he may co-operate with the client in pricing, providing advice on

construction methods and buildability and accelerating the commencement and completion of the project.

(Masterman, 1992: 3)

There are six variants in this category:

- a. Single-stage selective tendering.
- b. Two-stage selective tendering.
- c. Negotiated contracts.
- d. Continuity contracts.
- e. Serial contracts.
- f. Cost-reimbursable contracts.

2. **Integrated procurement systems** – where design and construction become the responsibility of one organization, usually a contractor and the client has only one organization to deal with.

(Masterman, 1992: 3)

There are four variants in this category:

- a. Design and build contracts.
- b. Package deal contracts.
- c. Turnkey contracts.
- d. Develop and construct contracts.

3. **Management-orientated procurement systems** – where the emphasis is placed upon overall management of the design and construction of the project with the latter element usually being carried out by works or package contractors and the management contractor having the status and responsibilities of a consultant.

(Masterman, 1992: 3)

There are three variants in this category:

- a. Management contracting.
- b. Construction management.
- c. Design and manage.



Although Masterman does adopt a practical approach to the categorization of building procurement strategies, his classification system unfortunately represents only a subset of all the construction project organizations that can be found in the UK construction industry. This is because his classification system is focused at a relatively low organizational level that is unable to recognize all of the available permutations of inter-relationships that can exist between the many social agencies that may be involved in a construction project, e.g. clients, professional consultants, primary and secondary contractors, and suppliers. Granovetter has qualified this supposition by asserting: “Social relationships between firms are more important, and authority within firms less so, in bringing order to economic life than is supposed in the markets and hierarchies line of thought” (Granovetter, 1985: 501). His argument is based on Williamson’s (1971; 1975; 1979; 1981; 1985; 1986) *markets-and-hierarchies* theories which present the notion that organization structures are developed in order to respond to market conditions (see Section 5.2 Inter-organizational Relationships on page 114 for more information about Williamson’s *markets-and-hierarchies* theories). In essence, what Granovetter has argued is that most organizations and their economic behaviour are closely embedded in networks of social relationships and, as a result, social networks are a means of reducing transaction costs. To thus construe them as independent variables would be a grievous misunderstanding. Indeed, how behaviour and organizations are affected by social relations is one of the classic questions of social theory and, unfortunately, one that has been overlooked by construction management theorists for many years. Even though these relationships are formally governed and regulated by contracts (see Section 2.7 Contracting in the Construction Industry on page 35 for further information on *construction contracts*), they are always supplemented and moderated by informal understandings and practices which have evolved in order to cope with the unforeseen, sometimes unforeseeable, difficulties that characterize construction projects (Cherns and Bryant, 1984).

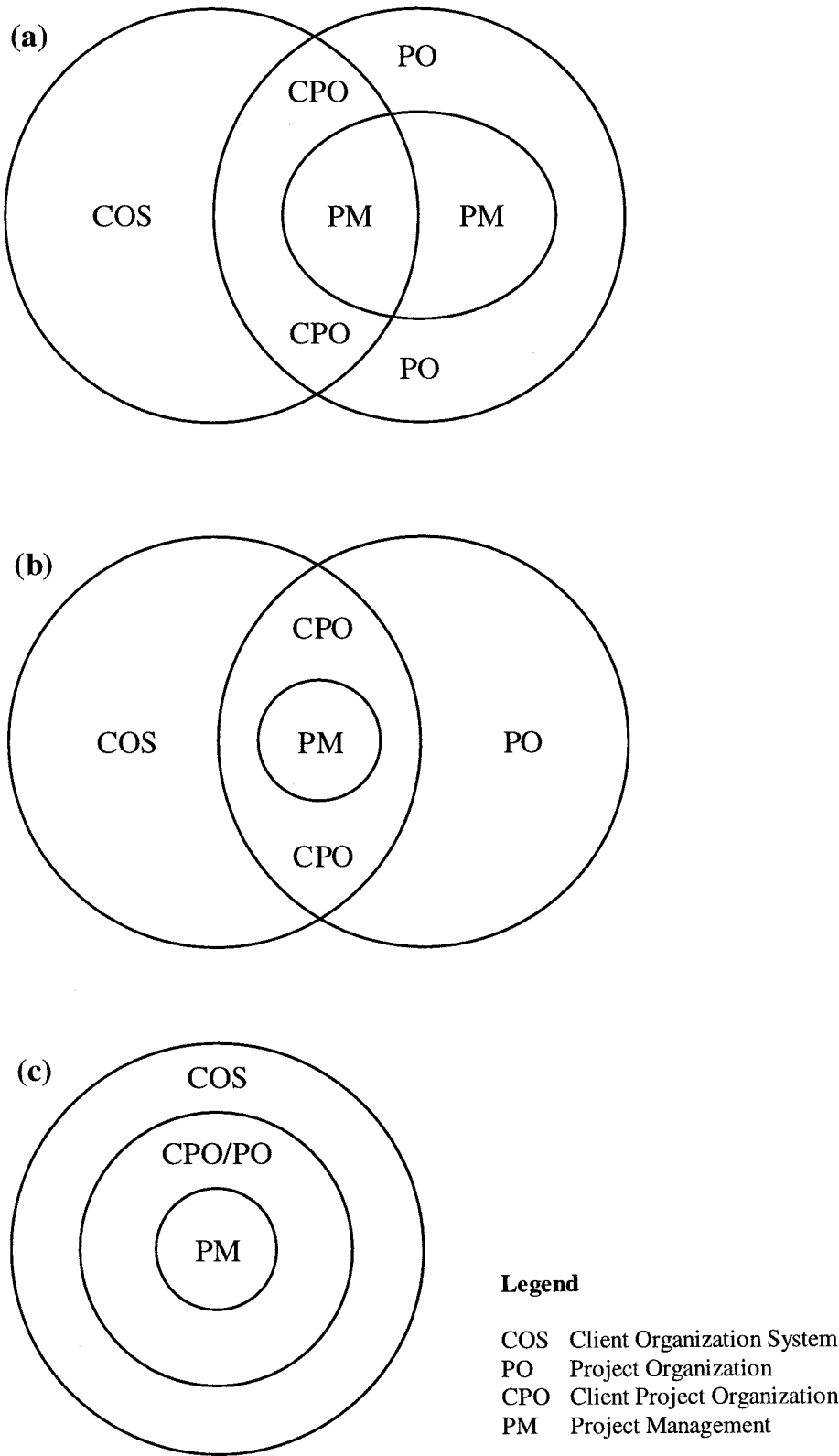
However, Gardiner and Simmons (1992b; 1992a) have developed a model that is based on a higher organizational level. Gardiner and Simmons’ model enables researchers to focus their attention upon the social relationships that exist between the construction-related individuals, groups and organizations that collectively form construction project organizations, whilst at the same time, acknowledging the

procurement strategies and construction contracts that have been selected by construction industry clients. Their organization-system model was developed as a result of an original investigation that primarily focused its attention upon the social relationships that exist between the separate *component organizations* that can be involved in the construction process. Gardiner and Simmons have defined the different types of component organization as follows:

1. **Client system** – this term includes all the organizations which satisfy one or more of the following criteria (Walker, 1996):
  - a. Has the authority to approve expenditure on the project.
  - b. Has the authority to approve the form the project has to take and/or its timing.
  - c. Will be the owner of the project.
  - d. Will be a major tenant or user.
  - e. Will administer or manage the project upon completion.
2. **Project organization** – the temporary multi-organization (TMO) established for the limited and finite purpose of bringing the project into being from inception to completion, and which consists of parts of several separate and diverse organizations (including the client system), and whose members will eventually disperse, going back to their own organizations or on to some new project (Cherns and Bryant, 1984).
3. **Client project organization** – the intersection of project organization and client system, and that part of the client system designated or assumed as having project responsibility (Gardiner and Simmons, 1992b).
4. **Project management** – a subset of the project organization whose responsibility includes one or more of the following management functions: boundary control, monitoring, maintenance activities (in connection with the activities of the project organization), project recommendation and/or approval powers (Walker, 1996).

Three examples of how these component organizations can be socially related to one another in order to form typical construction project organizations are illustrated in Figure 3.3 on page 80. Figure 3.3a is indicative of the vast majority of construction project organizations that can be found in the UK. It demonstrates how the role of *project management* (PM) is shared between the *client project organization* (CPO) and at least one member of the *project organization* (PO). Whereas in Figure 3.3b,

**Figure 3.3     Construction Project Organization Models**



(Gardiner and Simmons, 1992b: 466)

the *project management* function (PM) is totally encapsulated within the *client organization system* (COS). Gardiner and Simmons have explained that this construction project organization is typical of most large property development organizations in the UK. However, the organizational structure that is illustrated in Figure 3.3c is rare. In this situation, the entire *project organization* (PO) is a subset of the *client organization system* (COS). This construction project organization is therefore representative of the in-house property development arm of a large construction firm.

Central to Gardiner and Simmons' study are three important concepts that were originally outlined in work that was published by Cherns and Bryant in 1984. Cherns and Bryant's investigation was initially aimed at examining and describing the relationship between different forms of client involvement and construction management performance, having regard to the constraints on behaviour imposed by the construction contract. Following their survey, Cherns and Bryant made twenty general propositions or hypotheses about the client's role in the organization and management of construction projects. They subsequently recommended that these hypotheses should be tested in order to measure their internal validity. As a result, Gardiner and Simmons selected the following concepts and rigorously tested them during the theoretical development of their construction project organization model. The concepts utilized by Gardiner and Simmons can be summarized as follows:

1. A construction project is the temporary engagement over different points in time of several separate and diverse organizations, e.g. client, consultants, contractors, subcontractors and suppliers, for the finite and limited purpose of designing and constructing a building.
2. The management of a construction project from inception to completion is the function of a *temporary multi-organization* that is formed specifically for this purpose. Once a construction project is completed, the separate and diverse organizations that formed the temporary multi-organization disperse and subsequently form new temporary multi-organizations in order to construct further buildings.
3. The client is a complex organizational system that is comprised of several separate and diverse interest groups, some congruent and some competing. The diverse influences within the client system are themselves part of the temporary multi-organization and can therefore seriously affect its performance.

The temporary multi-organization may come in many different shapes and varieties, depending upon the nature of the construction project, the nature of the client organization, the mode of building procurement and the form of construction contract chosen. Together these factors can seriously affect the performance of the temporary multi-organization during the construction of a project from inception to completion. However, Cherns and Bryant have reported: "The actual performance of the TMO is determined more by the managerial capabilities of its component organizations and their co-ordination than by the form of the contract (which is, in effect, the equivalent of the 'articles of association' of the TMO)" (Cherns and Bryant, 1984: 182). From Cherns and Bryant's observation it can be deduced that the actual performance of the temporary multi-organization is dependent upon the nature of the inter-organizational relationships that exist within and between its component organizations. Consequently, Cherns and Bryant have demonstrated that the nature of the inter-organizational relationships that exist within the temporary multi-organization can have substantial positive (i.e. *constructive* or *functional*) and negative (i.e. *destructive* or *dysfunctional*) effects upon the achievement of project-specific objectives. Cherns and Bryant have also declared that anti-social behaviour or social conflict can critically affect the formation, development and subsequent performance of the temporary multi-organization, which is set up to manage the construction project, and of which the client organization system is an initiating component. This last statement is important on two counts: firstly, it explains how social conflict during the construction process is inevitable; and secondly, it explains that social conflict during the construction process can promote dysfunctional outcomes.

The temporary multi-organization, or the construction project organization system, is therefore an important focus of research because of its potential to describe and model the inter-organizational relationships that typically exist during the design development and fabrication sub-processes of building projects. Most importantly, however, the technique can also help theorists to analyse construction industry inter-organizational relationships and dysfunctional social or inter-organizational conflict unimpeded by the inherent limitations associated with the conventional contractual framework approach to the conceptualization of construction project networks.

### 3.9 SUMMARY

Previous studies that have examined the nature and context of inter-organizational relationships during the fragmented construction process have rarely attempted to relate their theoretical development to the established frameworks that exist within the social sciences. Although systems-based theories are helpful in describing and understanding the fragmented nature of the construction process, they are unable to explain the nature of the social relationships that exist between construction-related organizations. It was suggested that in the UK construction industry the nature of the relationships that exist between construction-related organizations is dependent upon the attributes of the client organization and the component organizations themselves. Gardiner and Simons' organization system model was presented as an appropriate framework from which selected sociological theories could be effectively used in order to analyse construction industry inter-organizational relationships. It was also proposed that social conflict between construction-related organizations is inevitable and promotes dysfunctional or destructive project-related outcomes.

## 4 ORGANIZATIONAL CONFLICT THEORY

### 4.1 INTRODUCTION

The concept of social conflict is of central importance to the study of social relations. Despite its significance, social conflict in the construction industry has been almost wholly neglected since a brief period of interest during the mid-1980s. The vast majority of research that has been published on construction conflict has tended to be focused on contractual issues and dispute resolution procedures, as opposed to the functional attributes of social conflict between those organizations that are involved in the design development and fabrication of buildings. Academics and industrial practitioners have attempted not so much to understand and control social conflict functionally, as to find ways for reducing it. A significant proportion of human and other project-related resources are wasted because construction project organizations generally work towards the elimination or suppression of social conflict. The aim of this chapter is therefore to clarify the *constructive* as well as the *destructive* functions of social conflict and to consolidate conceptual sociological schemes that are pertinent to its study. The objective is to determine a structure at the macro level that will enable researchers to undertake an effective study of social conflict between construction-related organizations during the realization of building projects.

### 4.2 SOCIAL CONFLICT

Conflict, in its many forms, is an endemic product of natural human behaviour. It is a fundamental component of the interaction that normally takes place between social agencies, i.e. individuals, groups, organizations and nations, within a social system. When two or more social agencies interact with one another in order to attain their individual or mutual objectives, it is generally accepted that their relationship may well become incongruous or inconsistent in nature. Such incompatible relationships usually occur when two or more social agencies have similar appetites for essential resources that are scarce; have partially exclusive individual objectives and behavioural preferences regarding their mutual interaction; or have divergent attitudes, values, beliefs, skills and abilities (Rahim, 1992a).

Conflict is therefore an inherent attribute of social behaviour that is capable of upsetting the normal state of community equilibrium within a social system. This interpretation of social conflict is particularly relevant to the construction industry where disputes between construction-related organizations appear to be completely unavoidable during the processes of designing and physically constructing new buildings (Hellard, 1988;1992; Lavers, 1992; Newey, 1992; Smith, 1992). The current intensity of arbitration and litigation within the UK construction industry undeniably provides construction management theorists with a constant reminder of the usually destructive consequences of social conflict (Cheung and Suen, 2002).

Contrary to popular belief, social conflict does not always produce *destructive* or *dysfunctional* outcomes. Social conflict may actually be extremely beneficial to a social system and may literally produce *constructive* or *functional* outcomes. In a seminal paper that was published in *Administrative Science Quarterly* during the mid-nineteen-sixties, Lewis Pondy – an organizational behaviour and management theorist – articulated the following influential observation regarding the functional classification of social conflict:

Conflict may be functional as well as dysfunctional for the individual and the organization; it may have its roots either within the individual or in the organizational context . . .

(Pondy, 1967: 298)

Pondy's perspective is reflected in the theoretical work of Lewis Coser (1968), who first published his classic work on the functions of social conflict in 1956. In his definitive work, Coser has described the functions of social conflict in a number of basic propositions that have been distilled primarily from the theories of Simmel (1955) that were originally published in his native language (i.e. German) in 1919. These propositions are in turn extended and related by Coser to other sociological theories, such as those of psychoanalysis, and to subsequent empirical research. For example, Coser feels that social conflict, far from being merely a *negative* factor, may fulfil a number of *positive* social functions that may well maintain group boundaries and prevent the withdrawal of members from a group. Coser has concisely expressed his conviction towards social conflict by stating: "Conflict is not



always dysfunctional for the relationship within which it occurs” (Coser, 1968: 47). Coincidentally, the very same point was also made one year later by Assael – a marketing management theorist – who similarly declared: “Conflict between organizations may have constructive as well as destructive consequences” (Assael, 1969: 573).

*Functional conflict* is therefore a term that is applied to a social antagonism that normally results in progress and achievement or in a far better outcome than would otherwise have been expected. *Dysfunctional conflict*, however, is a term that is applied to a type of social antagonism that generally prevents progress, averts achievement and suspends success. Generally speaking, it is not possible to differentiate between functional and dysfunctional conflicts as and when they arise within a social system. Whitfield (1994), for instance, has succinctly argued that the classification of social conflict into functional and dysfunctional groupings can only be effected retrospectively.

#### 4.3 SOCIAL CONFLICT AND ORGANIZATIONAL BOUNDARIES

In comparison to the majority of the academics who dominated sociological research during the 1930s, '40s and '50s (e.g. Bernard, 1950; Lundberg, 1939; Odum, 1931 to name but three), Coser (1968) can be considered to be a reformist who directed his attention towards the *dynamic functions* of social conflict as opposed to the *static problems* of conflict adjustment. For example, Coser has suggested that social conflict can facilitate *distinctiveness* between social agencies within a social system by encouraging what he has termed *individuality*. He also explained that social conflict could actually enhance the attractiveness of social agencies through the establishment of unique cultures and ideologies, i.e. social conflict can promote individuality. According to Coser, social conflict can therefore be regarded as a most important agent for the promotion of unique group identity and autonomy within a specific social system:

. . . conflict sets boundaries between groups within a social system by strengthening group consciousness and awareness of separateness, thus establishing the identity of groups within the system.

(Coser, 1968: 34)

This perspective has interesting repercussions for those scholars who propose to study the dysfunctional social relations that typically exist between the organizations (i.e. social agencies) that are commonly involved in the construction process. It has introduced the notion that an important function of social conflict is to contribute towards the maintenance of unique group identities within the realm or domain of the larger social system. As far as the UK construction industry is concerned, it could therefore be argued that social conflict is partly responsible for maintaining the continued separation or fragmentation of the construction process into a large number of diverse professional activities and trade skills (see Section 2.6 Fragmentation in the Construction Industry on page 32 for additional information regarding *fragmentation*). This is because social conflict, according to Coser's proposition, can promote and enhance the uniqueness of the various construction-related organizations that are typically bound by the contracting system (see Section 2.7 Contracting in the Construction Industry on page 35 for more information about the *contracting system*). Social conflict therefore helps to sharpen the boundaries that usually exist between the different professional and trade organizations by actually strengthening group consciousness and awareness of separateness.

These positive functions of social conflict complement Ball's (1980; 1988) economic theories of the UK construction industry that were summarized earlier. In Chapter 2 it was contended that fragmentation within the UK construction industry is the structural result of the *contracting system*, which in turn has evolved as a result of capitalism and the ever-increasing demand for improved productivity during the construction process. Implicit in this explanation is the notion that social conflict is a fundamental attribute of inter-organizational behaviour. In other words, social conflict is the indirect result (i.e. the *effect*) of fragmentation in the UK construction industry. This assertion led to the formulation of the main driving force behind this Ph.D. research project, viz. that social conflict during the construction process is

complex and contingent upon the network of social relations that usually exist between the organizations that are typically bound by the contracting system. According to Ball, however, social conflict can also be regarded as an inherent attribute of construction project organizations, and is partially responsible for promoting and maintaining (i.e. *causing*) fragmentation in the UK construction industry. Because social conflict is both a likely *cause* and a subsequent *effect* of fragmentation, it could therefore be argued that social conflict has a critical role to play in helping to structurally organize the UK construction industry.

#### 4.4 HOSTILITY AND TENSION IN SOCIAL CONFLICT RELATIONSHIPS

In addition to his evaluation of the role of social conflict in helping to shape group boundaries, Coser (1968) also gave considerable time and attention to the presence of hostility and tension in conflict relationships. He reported that the expression of hostility in conflict serves positive functions insofar as it permits the maintenance of social relationships under conditions of extreme stress and tension. Consequently, social conflict can substantially discourage the dissolution of groups within social systems through the withdrawal of hostile participants. In other words, it can actually perform *group-maintaining* functions by promoting the regulation of social relationships. Thus, social conflict can facilitate the elimination of accumulated hostile feelings by encouraging what Coser has termed *free behavioural expression*, i.e. it clears the air of blocked and baulked hostile dispositions by allowing their unrestricted representation. The importance of Coser's way of thinking with respect to this positive aspect of social conflict is outlined in the following statement:

Without ways to vent hostility toward each other, and to express dissent, group members might feel completely crushed and might react by withdrawal. By setting free pent-up feelings of hostility, conflicts serve to maintain a relationship.

(Coser, 1968: 47-8)

At first glance, however, it would appear that Coser has only considered the effect of conflict from one perspective, i.e. the *aggrieved group*, without similarly considering the reciprocal response, i.e. the *non-aggrieved group*. But in actual fact his

examination of the *release* function of social conflict for the aggrieved group only concerns him insofar as the release process permits the maintenance of the social relationship. In other words, social conflict is able to perform a *group-preserving* function by acting as a safety-valve device for those frustrated group members within the social system.

Conversely, Coser has suggested that there are situations where conflict can arise exclusively from aggressive impulses that seek expression no matter what the object, wherein the choice of object is purely accidental. In such cases, it is not the attainment of the result that is important but rather the ability to discharge aggressive energies that may initiate the outbreak of hostile activities. Thus, although affected by the personalities and ideologies of the social agencies themselves, conflicts that are occasioned by clashes of interest or personalities are likely to contain an element of limitation insofar as the struggle is only a means to an end. This is especially true if the desired result can be achieved successfully by another means. In such circumstances, Coser has suggested that social conflict is only one of several functional alternatives that are potentially available to the aggrieved party.

Once again this proposition can readily be demonstrated in the UK construction industry where disputes between those organizations that are typically involved in the construction process are common. During periods of extreme stress and tension, e.g. during extended periods of reduced economic activity, it is possible for frustrated and aggrieved organizations within the industry to release hostile sentiments upon a substitute object, thus creating a new conflict situation with that particular object. For example, those primary contractors that willingly commit themselves to onerous contractual relationships with clients (particularly those construction contracts where they can expect to receive very low margins) may be more likely to express hostile feelings with secondary contractors over untenable aspects of performance. Because the primary contractors will experience economic stress and tension throughout the duration of such difficult projects, their resulting desire for subjugation could therefore be satisfied through the realization of dysfunctional social relationships and destructive social conflicts with secondary contractors.

Implicit in this differentiation between conflict as a *process* (i.e. as a means) and conflict as a *product* (i.e. as an end in itself) is a criterion by which it is possible to distinguish between what Coser has described as *realistic* and *non-realistic* conflict. These two divisions of hostility and tension in dysfunctional social relationships can be defined as follows:

1. **Realistic conflict** – the conflicts between two or more social agencies which arise from frustration of specific demands within the relationship and from estimates of gains of the participants, and which are directed at the presumed frustrating object. They are a means toward a specific result.
2. **Non-realistic conflict** – the conflicts between two or more social agencies that are not occasioned by the rival ends of the antagonists, but by the need for tension release of at least one of them. The choice of antagonists depends on determinants not directly related to a contentious issue and is not orientated toward the attainment of specific results.

(Coser, 1968: 49)

This distinction between realistic and non-realistic conflict in the UK construction industry involves a conceptual abstraction from reality in which the two constructs are actually merged. Much of the confusion that exists within the published research on construction conflict is a consequence of the investigators' miscomprehension of this distinction.

#### 4.5 SOCIAL CONFLICT IN ORGANIZATIONAL RELATIONSHIPS

The dominant theme that seems to underlie Coser's (1968) understanding of social systems is the notion that the *intensity* of conflict is directly related to the *closeness* of the relationship. It is apparent, therefore, that a correlation appears to exist between social conflict and the extent to which social agencies are linked together by mutual exchanges or commitments on a continuing basis. However, this proposition does not necessarily point to the increased *likelihood* of social conflict in closer or interdependent relationships than less close or independent ones. As a matter of fact, Coser has suggested that the closer the relationship and the more participants that are involved in it, the more occasions there are for conflict to naturally appear.

However, by taking Coser's assertion one step further, it could be argued that the more frequent the interaction is between social agencies, the more occasions there are for social conflict to arise between them. This conception is reflected in the UK construction industry where the incidence of contractual disputes between the organizations that are bound by the contracting system appears to be directly related to the degree of their *interdependence* (see Section 6.3.1 INTERDEPENDENCE (F<sub>9</sub>) on page 164 for more information about *interdependence*).

It has already been demonstrated above that Coser's constructs regarding the functions of social conflict, i.e. *individuality*, *intensity* and *familiarity*, can be readily applied to construction. This is particularly the case for *partnering* which has gradually become one of the favoured building procurement strategies among large construction firms and construction clients. Although principally driven by the major clients of construction-related work, partnering has provided the vehicle by which the UK construction industry is adept at realizing the key Latham (1994) and Egan (1998) agendas that were outlined previously in Section 3.5.1 Latham Report on page 55 and Section 3.5.2 Egan Report on page 58.

#### **4.5.1 Co-operative Organizational Relationships in Construction**

In essence, partnering is a structured management approach that facilitates the efficient and effective working of construction project teams across non-contractual and contractual boundaries. Within such an approach, two or more construction-related organizations or *project partners* collectively form an interdependent social unit, i.e. a *temporary multi-organization* or a *construction project organization* (see Section 3.8 Construction Project Organization Systems on page 75 for more information regarding *temporary multi-organizations* and *construction project organizations*). This enables the project partners to integrate their unique strengths and abilities in order to improve their individual and collective performance. In practice, partnering can be applied to one-off construction projects (i.e. *project-specific* partnering), or can be on-going over a series of construction projects during a long-term relationship (i.e. *strategic* partnering). These two approaches, however, are not mutually exclusive. For example, a project-specific partnering relationship

may develop into a longer-term or strategic partnering arrangement. Conversely, a strategic partnering relationship may provide the framework for a series of project-specific arrangements. According to Bennett (1995; 1998), the fundamental components of a partnering framework, irrespective of which arrangement is embraced, should always include the following:

1. **Formalized mutual objectives** – these are focused not just on the final objective but also the intermediate objectives that naturally occur throughout the construction process. Strategies for addressing the mutual objectives need to be clearly identified and constantly reviewed.
2. **Agreed problem resolution procedures** – these need to be formalized at the start of the construction process and deal with all problems that arise, before they become full-blown disputes. They are non-contractual and cover three levels of problem: technical, managerial and political. When the solution cannot be agreed at the end of the procedure, the problem is taken to adjudication.
3. **Continuous measurable improvements** – these concern all of the project partners. A wide range of comparative performance indicators are developed that measure increase in value, whilst at the same time, encouraging the project partners to successfully meet the client's requirements.

It is acknowledged, however, that partnering is not an appropriate procurement strategy for all construction projects (Bennett, 1995;1998). Provided the attributes of the construction project are favourable, when initially considering the possibility of entering into a partnership arrangement, the project partners should carefully seek to identify all sources of project risk and uncertainty. Once this preliminary procedure is completed, they should then establish which partners are best able to assess and manage the quantum of risk. Assuming this process has been completed correctly, partnering therefore succeeds, and repays the initial investment of resources, when:

1. The client's procurement strategy fully accepts that the construction project is high value and high risk.
2. The primary contractor's interest is driven by the prospect of a high value and attractive account that is central to their business strategy.

After taking into consideration what Coser has actually said regarding the functions of social conflict, the following conjecture concerning the correlation between

project partnering and conflict can therefore be formed. When selected construction-related organizations form a partnership arrangement, each project partner or constituent organization should largely feel comfortable knowing that they have helped to create a potentially stable social system. Provided the project partnership remains stable and secure throughout the duration of the construction process, the constituent organizations are generally more likely to express feelings of hostility and tension as soon as they are generated. This is because the partnership was originally created by organizations that possessed common goals, values and interests that do not contradict the basic assumptions upon which the relation is founded. Any hostile feelings that are therefore propagated during the course of the construction process would then be expressed as functional conflict. Coser has acknowledged this by writing:

... hostile feelings generated within a relationship are more likely to be expressed if the participants are aware of its stability, for if they are secure they will tend to express their feelings freely.

(Coser, 1968: 81)

Conflict may therefore serve to remove dissociating elements in a social relationship and to encourage the re-establishment of unity and harmony. But insofar as conflict is the resolution of tension between aggrieved social agencies, it also performs *stabilizing* functions and subsequently becomes an integrating component of the social relationship. This conception regarding the role of conflict in helping to stabilize social relations is reflected in the following statement by Pondy:

Conflict is intimately tied up with the stability of the organization, not merely in the usual sense that conflict is a threat to stability, but in a much more complex fashion; that is, conflict is a key variable in the feedback loops that characterize organizational behavior.

(Pondy, 1967: 298)

However, it would be incorrect to assume that the lack of social conflict in a relationship is a clear indication of stability and security, or that the relationship is



completely free of potentially disruptive feelings. This perspective is outlined in the tenor of Coser's following argument:

The absence of conflict cannot be taken as an index of the strength and stability of a relationship. Stable relationships may be characterized by conflicting behavior. Closeness gives rise to frequent occasions for conflict, but if the participants feel that their relationships are tenuous, they will avoid conflict, fearing that it might endanger the continuance of the relation.

(Coser, 1968: 85)

As a consequence of the above discussion, the following question arises: during typical methods of procurement (e.g. conventional and design and build contracting), to what extent does social conflict contribute towards the strength and stability of the construction project organizations? This question, which underlies this doctoral investigation, accepts Coser's fundamental proposition regarding the constructive or positive social functions of conflict. That is to say, social conflict can help to maintain and stabilize group boundaries, and social conflict can help to prevent the withdrawal of members from a group.

#### 4.6 UNIFIED THEOREM OF SOCIAL CONFLICT

It is apparent that a close association therefore exists between Coser's (1968) social theories and Ball's (1980; 1988) economic theories of conflict. Together they have fully acknowledged the importance of functional and dysfunctional conflict to most social systems. In providing reasonable arguments for their perspectives, they have effectively demonstrated that social conflict is both a likely *cause* and a subsequent *effect* of fragmentation in the UK construction industry. However, this combined or *unified theorem*, which is derived from the amalgamation of Coser's and Ball's theories, is just one possible interpretation of social conflict. Other interpretations exist that also consider the inter-relationship between the manifestation of social conflict and its significance within social systems.

One such example is the work of Talcott Parsons (1949; 1956a; 1956b; 1964), the eminent American sociologist. Parsons' structural-functional theory developed as a

result of his keen interest in the non-rational elements of economic behaviour. What appeared problematic to Parsons were not the rational conflicts of interest that had previously attracted the attention of *classical* theorists, but rather the non-rational, non-contractual elements in contracts, i.e. non-contractual inter-organizational relationships, which had escaped their notice. By focusing his attention on normative social structures, i.e. those social systems that maintain and guarantee social order, Parsons was directed to view conflict as having primarily disruptive, dissociating and dysfunctional consequences. As a result, Parsons considered conflict to be nothing more than an unavoidable *social disease*, although this general orientation led him to view conflict as destructive and dysfunctional and to disregard its constructive and positive functions. Conflict therefore appeared to him as a partially avoidable, partially inevitable and wholly endemic disease that is capable of infesting the vast majority of social systems.

Although Parsons did make innovative contributions to the body of knowledge concerning social systems (see Section 5.9 Inter-organizational Collectivities on page 139 for further information regarding this aspect of Parsons' work), he was unable, given his initial orientation, to significantly advance the theory of social conflict or even see its general theoretical importance. Even though his work is not totally at variance with the theoretical orientations adopted by Ball and Coser, for the purposes of this particular research project, the *unified theorem* will be accepted as a definitive explanation of social conflict. This is because the unified theorem acknowledges that conflict can induce both functional and dysfunctional outcomes in most social systems and, most importantly, supports Gardiner and Simmons' (1992b; 1992a) organization-system model of the construction process that recognizes the rational and non-rational elements of economic behaviour (see Section 3.8 Construction Project Organization Systems on page 75 for additional information regarding Gardiner and Simmons' *organization-system model*).

Therefore, as far as this study is concerned, it is important that the *latent variables* or *constructs* as well as the *manifest variables* or *observable indicators* within social relationships are investigated if the full meaning of social conflict is to be disclosed analytically (see Section 6.3 Operationalization of Constructs on page 163 for an explanation of these terms and how their associated variables are operationalized

during this study). In order to satisfy this important methodological requirement, it is important that we now consider the theories and attributes of social conflict and their significance to those organizations that operate within the UK construction industry. This necessitates a detailed evaluation of social conflict in terms of generating a working definition and developing an understanding of its classification framework.

#### 4.7 DEFINITION OF ORGANIZATIONAL CONFLICT

Although Coser (1968) has said a great deal about the functions of social conflict, he has actually said very little, or made little or no attempt, to define it. This is rather surprising, as conflict has been with us and has influenced our thinking and actions since time immemorial. According to most theologians, one of the first recorded incidences of conflict can be found in the Old Testament of the Holy Bible where we can read:

And Cain talked with Abel his brother: and it came to pass,  
when they were in the field, that Cain rose up against Abel his  
brother, and slew him.

And the Lord said unto Cain, Where is Abel thy brother? And  
he said, I know not: Am I my brother's keeper?

(Genesis 4: 8-9 KJV)

Conflict has tended to receive different degrees of emphasis from a wide spectrum of academics during various periods of history. Nightingale has confirmed this conviction by arguing the phenomena relating to conflict over the years have:

... fallen within the purview of the historian, the novelist, the  
philosopher, and the theologian, and have been treated  
systematically by authors in all of the biological and social  
sciences. Conflicts between nations, political parties, and  
ideologies have been examined by the political scientists;  
conflicts in the market place have been examined by the  
economist; group conflicts of various kinds – familial, racial,  
and social class – have been investigated by the sociologist; and  
the struggle for survival by species of differing genetic  
endowments has been studied by the biologist.

(Nightingale, 1974: 141)

Scholars of organization theory became interested in studying conflict around the beginning of the 1950s. As a result, several distinguished organizational behaviour and management theorists devoted considerable time and attention to the formation and refinement of organizational conflict theory. This body of literature, which has been considered in detail during this thesis, remained largely undisturbed until a brief period of interest during the early to mid-1990s. Whilst this recent literature has also been acknowledged during the theoretical development of this doctoral investigation, there has been little further development since this time. Many different definitions and explanations of organizational conflict therefore exist. For example, Pondy (1967), in his leading research paper, has sorted these different definitions and explanations for organizational conflict into the following four broad categories:

1. **Antecedent conditions** – definitions that emphasize the preliminary and incidental conditions of conflictful behaviour that encourage disagreement, such as resource scarcity or policy differences (e.g. Brett *et al.*, 1990; Gardiner and Simmons, 1992b;a; March and Simon, 1993; Mondros *et al.*, 1992; Schmidt and Kochan, 1972).
2. **Affective states** – definitions that emphasize the natural feelings of the individuals involved to conflictful behaviour, such as stress, tension, hostility and antagonism (e.g. Brown, 1983; Smith, 1965).
3. **Cognitive states** – definitions that emphasize the perceptions and awareness of the individuals involved to conflictful situations and behaviour (e.g. Lawrence and Lorsch, 1967;1986).
4. **Conflict behaviour** – definitions that emphasize the physical and psychological behaviour of the individuals involved to conflictful situations, such as passive resistance and overt aggression (e.g. Litterer, 1966; Stern and Sternthal, 1975).

From Pondy's perspective it is apparent that the term *conflict* has no single clear meaning. Authors such as Schmidt and Kochan (1972), Bonoma (1976) and Thomas (1976; 1992) have authenticated this position by systematically reviewing the literature on conflict. Together they have effectively demonstrated that there is very little conceptual sympathy for a commonly accepted definition of conflict. In actual fact, these authors, along with Rahim (1992a; 1992b), have collectively illustrated the tremendous variance that exists between the available definitions of conflict.

In the discipline of organization theory, however, March and Simon have considered the term conflict to be:

A breakdown in the standard mechanisms of decision-making so that an individual or group experiences difficulty in selecting an action alternative. . . . Thus, conflict occurs when an individual or group experiences a decision problem.

(March and Simon, 1993: 132)

As Rahim (1992b) has suggested, this is an extremely narrow and limited conceptualization of conflict that is impractical for research purposes. A much broader conceptualization, however, is presented by Pondy, who has contended that organizational conflict can be best understood as a *dynamic process* that underlies organizational behaviour. He elucidates his unique thoughts regarding the dynamic process of conflict in the following statement:

Conflict can be more readily understood if it is considered a dynamic process. A conflict relationship between two or more individuals in an organization can be analyzed as a sequence of conflict episodes. Each conflict episode begins with conditions characterized by certain conflict potentials. . . . Each episode or encounter leaves an aftermath that affects the course of succeeding episodes.

(Pondy, 1967: 299)

Pondy's conceptualization does not necessarily mean that every *conflict episode* will completely pass through each stage of the dynamic process in order to become openly expressed as conflictful behaviour. As Coser (1968) has implied, the parties to the conflict may never perceive a potential conflict episode, or if perceived, the conflict may be resolved before hostilities actually break out. Several other alternative courses of potential conflict development are theoretically possible. Rahim has made this point perfectly clear in his authoritative textbook on managing conflict in organizations.

In addition to these opposing conceptualizations of conflict, Smith (1965) and Litterer (1966) have decided to adopt a middle-of-the-road approach when defining conflict. For example, Smith has defined conflict as: “A situation in which the conditions, practices, or goals for the different participants are inherently incompatible” (Smith, 1965: 511). Whereas Litterer has decided to define conflict as:

... a type of behavior which occurs when two or more parties are in opposition or in battle as a result of a perceived relative deprivation from the activities of or interacting with another person or group.

(Litterer, 1966: 180)

The main difference that appears to exist between the last two definitions is the fact that Smith considers conflict as a *situation*, whereas Litterer considers it as a type of *behaviour*. However, as Rahim has pointed out, both of these authors have considered conflict to be the result of incompatibility or opposition in goals, activities, or interaction among social agencies. After reviewing the influential work of Baron (1990), Rahim has concluded that although the available definitions of conflict are not identical, they overlap with respect to the following five distinctive elements:

1. Conflict includes *opposing interests* between individuals or groups in a zero-sum situation<sup>1</sup>.
2. Such opposed interests must be *recognized* for conflict to exist.
3. Conflict involves *beliefs*, by each side, that the other will thwart (or has already thwarted) its interests.
4. Conflict is a *process*; it develops out of existing relationships between individuals or groups, and reflects their past interactions and the contexts in which these took place.

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<sup>1</sup> Baron (1990) has explained that a zero-sum situation arises when conflict between social agencies (i.e. individuals, groups and organizations) typically involves opposing interests. That is to say, if one of the social agencies attains its major goals, then the other will, of necessity, be prevented from obtaining its major goals. On the other hand, in non-zero sum conflict situations, some of the preceding elements may not be present.

5. Conflict implies *actions* by one or both sides that do, in fact, produce thwarting of others' goals.

(Rahim, 1992b: 16)

Rahim has considered these five elements to be particularly useful when conceptualizing what Baron has termed a *zero-sum* conflict situation. For instance, Rahim cites the example of two marketing managers that work for a typical manufacturing-based organization. The two managers respect each other's judgment but disagree on their plans to enhance the market share for a particular product that is manufactured by their organization. Although each manager strongly believes that his or her marketing strategy is much better than the other's, each is of the opinion that the strategy prepared by the other manager has some potential for enhancing the product's overall market share. This conflict does not necessarily involve beliefs by each manager that the other will thwart (or has already thwarted) his or her interests.

As a consequence of Baron's work that identified the similarities of selected definitions of conflict, Rahim has elected to define conflict as an: "Interactive process manifested in incompatibility, disagreement, or dissonance within or between social entities (i.e. individual, group, organization, etc.)" (Rahim, 1992b: 16). By calling conflict an interactive state, Rahim has contended that it does not preclude the distinct possibility of *intra-individual* conflict, for it is widely recognized that a person often interacts with him/herself. Obviously, as Rahim has continued to explain, one also interacts with others. These two explanations have enabled Rahim to outline the following circumstances during which conflict would normally be expected to develop. Conflict generally occurs when a (two) social entity(ies):

1. Is required to engage in an activity that is incongruent with his or her needs or interests;
2. Holds behavioral preferences, the satisfaction of which is incomplete with another person's implementation of his or her preferences;
3. Wants some mutually desirable resource that is in short supply, such that the wants of everyone may not be satisfied fully;

4. Possesses attitudes, values, skills, and goals that are salient in directing one's behavior but are perceived to be exclusive of the attitudes, values, skills, and goals held by the other(s);
5. Has partially exclusive behavioral preferences regarding joint actions; and
6. Is interdependent in the performance of functions or activities.

(Rahim, 1992b: 17)

Since the underlying aim of this research project is to undertake a comparative study of inter-organizational conflict in the construction industry, it is therefore important to consider an appropriate explanation for organizational conflict at this particular stage during its theoretical development. According to Roloff, organizational conflict occurs when:

... members engage in activities that are incompatible with those of colleagues within their network, members of other collectivities, or unaffiliated individuals who utilize the services or products of the organization.

(Roloff, 1987: 496)

This explanation of organizational conflict is consistent with the general definition of conflict presented by Rahim immediately above. It also complements Coser's theories regarding the positive functions of social conflict that were succinctly summarized earlier. Consequently, for the purposes of this current investigation, Rahim's general definition will therefore be accepted as an authoritative and working explanation of social conflict.

#### 4.8 CLASSIFICATION OF ORGANIZATIONAL CONFLICT

As previously reported, the extensive literature that is currently available on organizational behaviour and management has produced many different categories of social conflict. In order to resolve this particular problem, Rahim (1992b) has stated that social conflict can be classified on the basis of its *sources* and the *organizational level* at which it may originate.



### 4.8.1 Sources of Organizational Conflict

This classification framework is determined by the *antecedent conditions* that usually precede and initiate the manifestation of social conflict. Social conflict normally originates from a number of different sources, such as goals, values, interests and tasks. Rahim has found it necessary to classify social conflict on the basis of these sources. This has enabled him to develop a clear and concise understanding of its nature and implications. The following definitive list outlines the classification framework that has been compiled by Rahim:

1. **Affective conflict** – this type of conflict usually occurs when two or more social agencies, while trying to resolve a common problem, become aware that their individual feelings and emotions regarding some or all of the issues are incompatible. This type of conflict is also termed *psychological conflict*.
2. **Conflict of interest** – this type of conflict usually occurs when two or more social agencies, while sharing the same understanding of a common problem that they are trying to resolve, prefer different and somewhat incompatible solutions that typically involve the allocation of scarce resources or activities.
3. **Conflict of values** – this type of conflict usually occurs when two or more social agencies differ in their individual values or ideologies on certain mutual issues. This type of conflict is also termed *ideological conflict*.
4. **Cognitive conflict** – this type of conflict usually occurs when two or more social agencies, while trying to resolve a common problem, become aware that their individual thought processes, perceptions and judgment policies are incongruent.
5. **Goal conflict** – this type of conflict usually occurs when two or more social agencies prefer different outcomes or end-state solutions to a common problem.
6. **Substantive conflict** – this type of conflict usually occurs when two or more social agencies disagree on their mutual tasks or content issues. It is appropriate to distinguish between this type of conflict and *affective conflict*. Affective conflict is concerned with the individual feelings or emotions of the social agencies that are typically involved in a conflictful situation, whereas substantive conflict is concerned with the basic issues that typically arise in such a situation.
7. **Realistic and non-realistic conflict** – these two types of conflict were previously described in Section 4.4 Hostility and Tension in Social Conflict Relationships on page 88. However, realistic conflict usually occurs when two or more social agencies, while trying to resolve a common problem, experience incompatibilities that have rational content, such as tasks, goals and values. Whereas non-realistic conflict usually occurs when two or more social

agencies, while trying to resolve a common problem, experience the desire to release tension or express hostility, ignorance and error.

8. **Institutionalized and non-institutionalized conflict** – institutionalized conflict is usually characterized by situations in which social agencies decide to follow explicit rules, they display predictable behaviour and their relationship has continuity. Conversely, non-institutionalized conflict is usually characterized by situations where these three conditions do not exist.
9. **Retributive conflict** – this type of conflict usually occurs when a social agency experiences the desire to initiate and prolong a conflictful situation in order to punish its opponent.
10. **Misattributed conflict** – this type of conflict usually occurs when a social agency incorrectly assigns the causes (i.e. behaviours, parties or issues) of a conflictful situation.
11. **Displaced conflict** – this type of conflict usually occurs when a social agency either displaces its individual frustrations and hostilities to another social agency that is not directly involved in a particular conflictful situation or decides to argue over secondary issues.

Under certain circumstances, the construction-related organizations (or social agencies) that are usually bound by the UK contracting system can sometimes experience conflict that originates from the above sources. From the unique perspective of this Ph.D. research project, it is important that these sources of social conflict are fully acknowledged whilst investigating the dysfunctional social relationships that typically occur during the design development and fabrication of large buildings. Such an approach will enable the significant or dominant antecedent conditions that so often precede and initiate social conflict during the construction process to be fully understood.

#### 4.8.2 Levels of Organizational Conflict

As discussed earlier in Section 4.7 Definition of Organizational Conflict, it is not that easy to concisely define organizational conflict. In comparison, however, it is much simpler to identify the levels of organizational conflict. For example, organizational conflict can be classified as either *intra-organizational* conflict (i.e. conflict *within* an organization) or *inter-organizational* conflict (i.e. conflict *between* organizations). It is possible to differentiate *intra-organizational* conflict into the levels at which it

occurs, i.e. individual or group. On this basis, intra-organizational conflict may be classified into four distinct categories, viz. *intra-personal* conflict, *inter-personal* conflict, *intra-group* conflict and *inter-group* conflict. *Inter-organizational* conflict, however, may be conceptualized from two distinct yet closely related constructs, viz. *structural* conflict and *operating* conflict. The following list outlines the *levels* of social conflict that can usually be found *within* and *between* organizations:

1. **Intra-personal conflict** – this type of conflict usually occurs when there is incompatibility or inconsistency among an organizational member's cognitive elements, which implies that a new cognitive element is at variance with a prior explanation or expectation. In other words, this type of conflict usually occurs when an individual is required to perform certain tasks and roles that do not completely coincide with his or her goals, values, interests or expertise. This type of conflict is also termed intra-individual or intra-psychic conflict.
2. **Inter-personal conflict** – this type of conflict refers to the manifestation of incompatibility, incongruence or dissonance between two or more interacting organizational members of the same or different hierarchical levels regarding task expectations, role performances or the availability of scarce resources. Typically, studies on superior ↔ subordinate or line-management conflict generally relates to this type of conflict.
3. **Intra-group conflict** – this type of conflict refers to the manifestation of incompatibility, incongruence or dissonance among the interacting members of a group, or between two or more interacting sub-groups of a department, regarding task expectations, role performances or the availability of scarce resources. This type of conflict is also termed intra-departmental conflict.
4. **Inter-group conflict** – this type of conflict refers to the manifestation of incompatibility, incongruence or dissonance between two or more interacting divisions, departments or sub-systems within an organization regarding task expectations, role performances or the availability of scarce resources. This type of conflict is also termed inter-departmental conflict.
5. **Intra-organizational conflict** – this type of conflict refers to the manifestation of incompatibility, incongruence or dissonance between two or more interacting hierarchical levels or departments within an organization regarding task expectations, role performances or the availability of scarce resources. It is common for this type of conflict to be differentiated into the above four categories of organizational conflict (based on the level of its origin), viz. intra-personal conflict, inter-personal conflict, intra-group conflict and inter-group conflict.
6. **Inter-organizational conflict** – this type of conflict refers to the manifestation of incompatibility, incongruence or dissonance between two or more interacting organizations regarding task expectations, role performances or the

availability of scarce resources. Molnar and Rogers (1979) have identified the following two types of inter-organizational conflict:

- a. **Structural conflict** – this type of conflict usually occurs over the basic identities and responsibilities that define a relationship and reflect an inability to establish or maintain the basic rules or principles that govern the relationship. Structural conflict often is due primarily to external constraints that shape the purposes and behaviour of each social agency in its approach to another.
- b. **Operating conflict** – this type of conflict refers to the level of disagreements or disputes that characterizes an inter-organizational relationship. It occurs in the process of problem-solving in inter-organizational relationships and represents disagreements over the task expectations or role performances of a particular position or unit, i.e. a social agency.

Conflicts that are classified by the above sources can occur at the inter-personal, intra-group, inter-group and inter-organizational levels (the only exception being intra-personal conflict). In other words, the manifestation of incompatibility, incongruence or dissonance caused by these sources of social conflict can only occur in the context of two individuals, a group, two groups or two organizations. Figure 4.1 on page 107 illustrates the association between the sources and levels of social conflict and the subsequent manifestation of a conflict episode.

It was implied within Rahim's general definition of organizational conflict that was discussed in Section 4.7 Definition of Organizational Conflict on page 96, that social conflict might occur *within* or *between* social agencies (i.e. individuals, groups and organizations). However, this distinction between conflict *within* and conflict *between* social agencies depends on a systems-based perspective for a given problem or conflictful situation. The classification of social conflict into six categories (based on the level of its origin) illustrates that analysis at different levels may be beneficial depending on the nature of the problem or conflictful situation. Many empirically-based studies of organizational conflict have implied, though not stated explicitly, that social conflicts can sometimes *move* or *transfer* from one location to another and subsequently become expressed at the secondary location in some *transposed form*. This intriguing proposition is confirmed by Smith – an American organizational behaviourist – who has said:

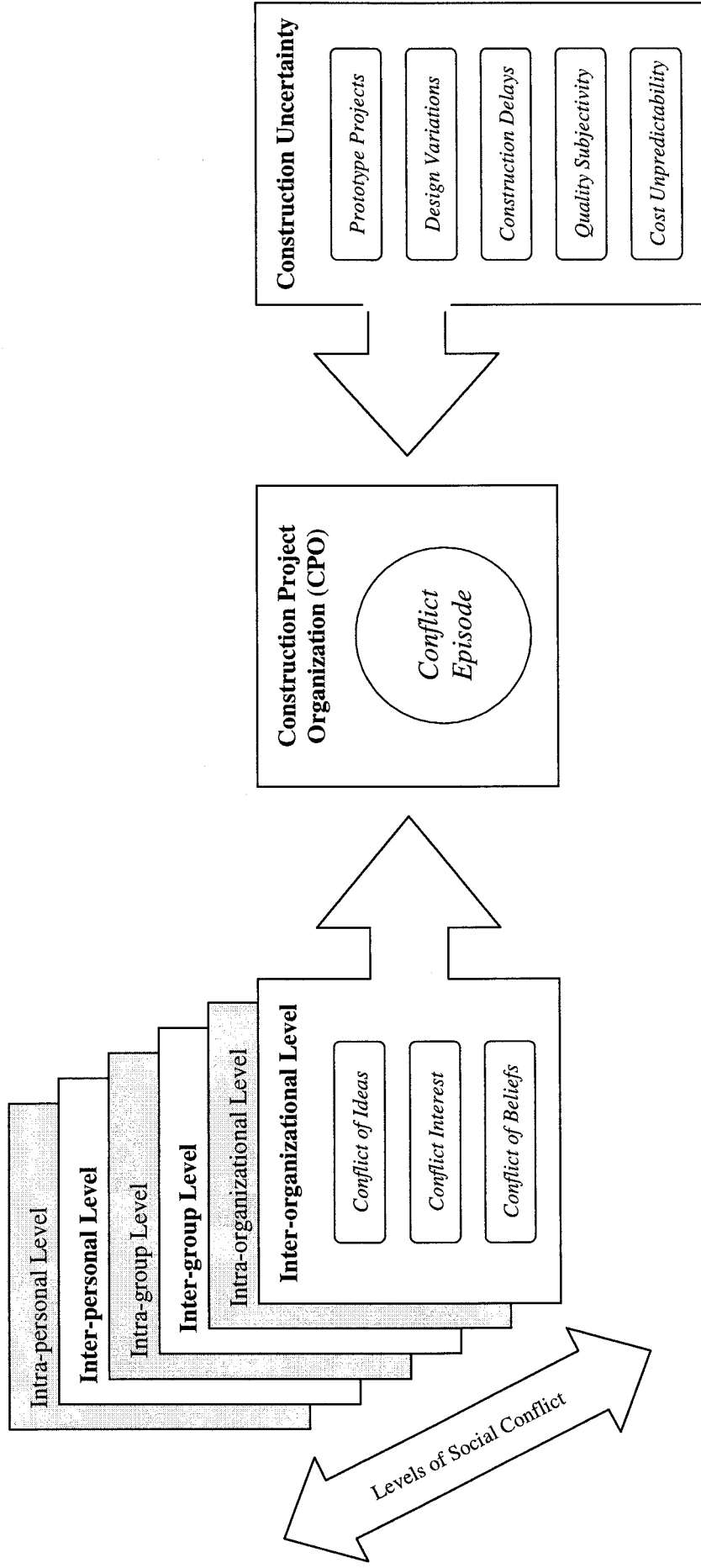
... conflicts 'belonging' at one location are often displaced and enacted elsewhere, there being a parallelism between the conflicts at the place of origin and the place of expression.

(Smith, 1989: 1)

Smith has described three preliminary considerations concerning the *relocation* of social conflict in organizations. Firstly, he has suggested that two locations (i.e. organizational levels) may be connected in such a way that social conflict can be passed from one to the other, making it possible for all the tension and hostility to be released at one location on behalf of both parties (i.e. social agencies); or the two locations may *transfer* them around so that each expresses the social conflict *belonging* to the other location. Secondly, Smith has explained that social conflict can be *moved* from multiple locations, like tributaries feeding into a river, and become *joined* together, producing pressures that are released at a weak point, like the walls of a dam giving way or a river bursting its banks. The point where conflicts are released can be understood as giving expression to all the social tensions and frustrations exported from elsewhere. Thirdly and finally, is Smith's unique theoretical proposition that as conflict moves, it can both *jump levels* of the social system (i.e. *transfer* between different organizational levels) and *change form* (i.e. *mutate* and manifest itself from an apparently different source altogether).

Smith's profound commentary on the socio-psychological processes through which social conflicts move around organizations and become expressed at locations quite removed from their places of origin should directly influence the theoretical and methodological approaches of empirically-based studies intending to investigate and appraise organizational conflict, such as this Ph.D. research project. This is because he has explicitly advocated the fundamental requirement to consider social conflict at all organizational levels when undertaking a detailed and comprehensive analysis of social conflict at one particular organizational level. Therefore, as far as this study is concerned, an empirically-based analysis of social conflict at the *inter-organizational* level should likewise include a parallel appreciation of social conflict at the *intra-organizational* level. By adopting such an approach it is readily acknowledged that social conflict belonging to the *intra-organizational* level may be displaced and expressed at the *inter-organizational* level or vice versa.

**Figure 4.1** Relationship between Levels and Manifestation of Social Conflict



#### 4.9 CHARACTERISTICS OF ORGANIZATIONAL CONFLICT

So far this chapter has illustrated the well-documented opinion that conflict is embedded in the basic attributes of organizations and their social behaviour and is invariably present. Very little attention has been given to the fact that conflict is actually a controllable element of social behaviour that can usually be adjusted in order to minimize its *dysfunctional* and maximize its *functional* characteristics (Kilmann and Thomas, 1978). While social conflict itself is *neutral*, its effects can be very disruptive or extremely enhancing for organizations and social systems (Walton and Dutton, 1969). Frequently it is the unexpected costs of inappropriately managed social conflict that stimulates organizations to re-evaluate the way in which they govern conflict. Brett *et al.* (1990) have remarked that there are many benefits associated with managing social conflict effectively that go well beyond such unexpected costs.

Organizational behaviour and management theorists have generally been concerned with resolving and managing conflict *within* an organization (i.e. *intra-organizational* conflict) rather than conflict *between* organizations (i.e. *inter-organizational* conflict) that are part of a social system, such as a construction project organization (see Section 3.8 Construction Project Organization Systems on page 75 for more information about *construction project organizations*). According to Assael (1969), the effective management of such social systems necessitates the evaluation and control of the effects of inter-organizational conflict on the performance and stability of the system itself. He has suggested that suitable criteria must be established that enable practitioners and theorists to distinguish between *functional* (or *constructive*) conflict and *dysfunctional* (or *destructive*) conflict.

The conceptual framework for the distinction between functional and dysfunctional conflict can be found in the writings of large-scale system sociologists, i.e. those writers who study social conflict between structurally-organized groups (e.g. Coser, 1968; Dahrendorf, 1959; Simmel, 1955). Generally speaking, these authors tend to regard conflict as potentially beneficial to the social system when it invokes a more equitable allocation of political power and economic resources by the formation of new countervailing forces, and greater balance and stability within the system. They

also tend to regard social conflict as potentially destructive when a lack of recognition of mutual objectives results. For example, constant coercion by the more powerful members of the social system can often drive less powerful, yet functionally essential members, from the central decision-making region of the system.

This view of social conflict contrasts with the more *traditional* or *classical* view developed by management theorists such as Taylor (1911), Fayol (1949) and Likert (1967), who were primarily concerned with the study of *intra*-organizational conflict as opposed to *inter*-organizational conflict. Because they neglected to consider the different effects that conflict can have on organizations, they implicitly assumed that conflict was detrimental to organizational efficiency and, as a result, decided that it should be minimized. This narrow perspective directed them to prescribe rigid organizational structures (such as rules and procedures, and horizontal and vertical channels of command) that reduced the likelihood of organizational members becoming subjected to conflict. Unfortunately, as Rahim (1992b) has suggested, this approach to the management of organizations was based on the untenable theory that harmony, co-operation and the absence of conflict were the fundamental components necessary to achieve organizational efficiency and effectiveness.

In providing reasonable argument for this premiss, Rahim (1992b), from his extensive theoretical and empirical studies on managing conflict in organizations, has concluded that a more realistic view of social conflict is that it has functional *as well as* dysfunctional potentials. This contemporary view of organizational conflict (i.e. conflict is inevitable and should therefore be managed effectively) directed Rahim to outline the following functional and dysfunctional outcomes of social conflict *in* and *between* organizations:

### **Functional Outcomes**

1. Organizational decision-making may be improved.
2. Alternative solutions to a problem may be found.
3. People may be forced to search for new approaches.



4. Conflict may lead to synergistic solutions to common problems.
5. People may be required to articulate and clarify their positions.
6. Conflict may stimulate innovation, creativity and growth.
7. Individual and group performance may be enhanced.

### **Dysfunctional Outcomes**

1. Conflict may cause stress and job burnout.
2. Communication between employees may be reduced.
3. A climate of distrust and suspicion can develop.
4. Job satisfaction and performance may be reduced.
5. Resistance to change can increase.
6. Organizational commitment and loyalty may be affected.

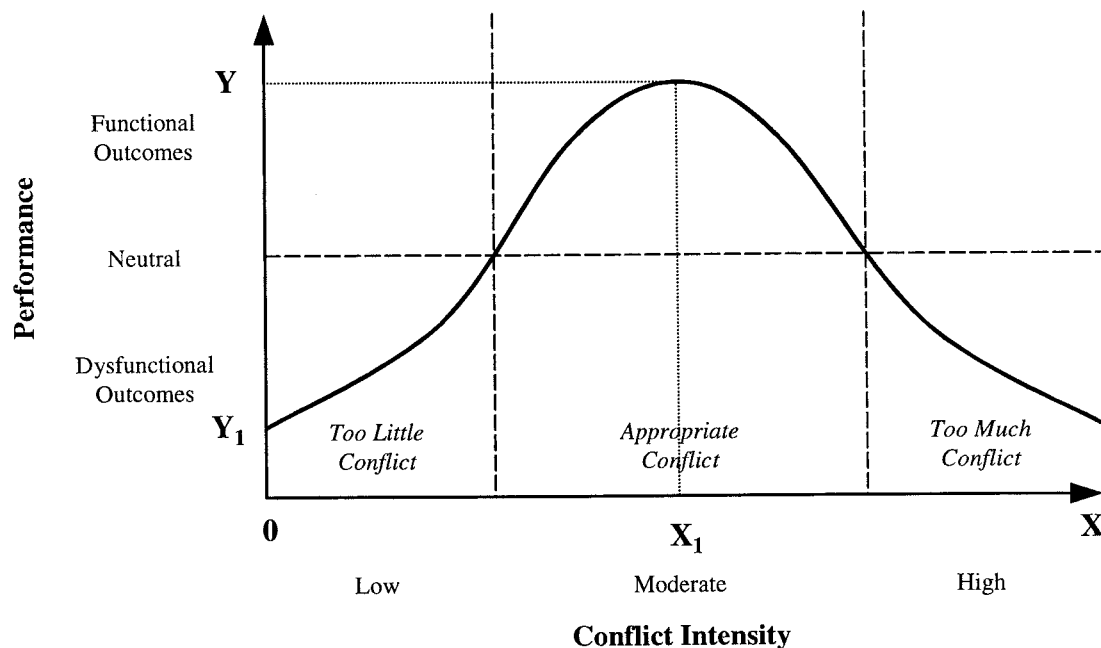
(Rahim, 1992b: 5)

If a social system, such as a construction project organization, is to benefit from conflict, then the destructive or dysfunctional outcomes of conflict must be reduced and the constructive or functional outcomes increased. However, bearing in mind the theoretical concepts of Assael (1969) and Smith (1989) that were presented above, absolute success in this particular area can only be effectuated if the management of such social systems are able to accurately distinguish between functional and dysfunctional conflict at both the *intra*- and *inter*-organizational levels.

Although social conflict can be managed in order to diminish its dysfunctional outcomes, it seldom goes completely away. Quite often, it is sustained and kept alive by the informal structures of organizations and social systems (Coser, 1968). Smith (1965), Mondros *et al.* (1992) and Rahim (1992a; 1992b) have contended that organizations (i.e. social systems) in which there are little or no conflict may actually stagnate and sometimes perish. The consensus of opinion among organization theorists, however, is that a moderate amount of social conflict is essential for

attaining an optimum level of performance. This proposition has been confirmed by Rahim and Bonoma (1979) and Brown (1983) who have effectively demonstrated that the relationship between the amount of conflict and performance approximates to an inverted-U function as illustrated in Figure 4.2 immediately below.

**Figure 4.2 Relationship between Conflict Intensity and Performance**



(Adapted from Brown, 1983: 8; Rahim and Bonoma, 1979: 1326)

The curve illustrated in Figure 4.2 represents the hypothesized relationship between *conflict intensity* (i.e. amount of conflict or behaviour) and *conflict outcomes* (i.e. performance) for social agencies with interdependent but different interests. As Brown chronicles in his textbook on managing conflict at organizational interfaces, the vertical dashed lines roughly indicate the ranges of too little, too much and appropriate intensities of conflict; whereas the horizontal dashed line indicates the shifting balance between functional and dysfunctional outcomes (i.e. positive and negative outcomes). He explains that the point where conflict intensity becomes excessive in either direction depends on the specific hostile situation. For instance, a low or negative level of performance (OY<sub>1</sub>) will be attained when the amount of conflict is relatively low (O) or high (OX). On the other hand, at a moderate amount of conflict (OX<sub>1</sub>), an optimum level of overall performance (OY) can be attained. It is anticipated that this relationship may be maintained when other external factors

that affect performance are held constant (Rahim and Bonoma, 1979). However, if these factors are not held constant, it is plausible that they could disturb Rahim and Bonoma's and Brown's prediction of the direct correlation between conflict intensity and outcomes for social agencies with interdependent but different interests.

Rahim and Bonoma's and Brown's work is consistent with the second of Baron's (1990) elements of conflict that were summarized earlier. In Section 4.7 Definition of Organizational Conflict on page 96, it was implied that social conflict does not necessarily occur purely and simply because there are incompatibilities, disagreements or differences *within* or *between* social agencies. For conflict to exist and be recognized by all social agencies it must exceed a minimum or *threshold level* of intensity. This concept regarding the threshold level of conflict is expressed by Rahim in the following statement:

In order for conflict to occur, it has to exceed the threshold level of intensity before the parties experience (or become aware of) any conflict. In other words, the incompatibilities, disagreements, or differences must be serious enough before the parties experience conflict.

(Rahim, 1992b: 17)

Rahim has further suggested that there are differences in the threshold of conflict awareness or *tolerance* among social agencies (i.e. organizations). Some organizations may become involved in a conflict episode much sooner than others under similar conditions. Implicit within this conceptualization is the notion that a correlation exists between the *absolute* threshold of conflict awareness and collective productivity. In other words, a minimal amount of conflict may be detrimental to the productivity of the entire social system, or as Parsons (1949; 1956a; 1956b; 1964) has defined it, the *organizational collectivity*. This conjecture encompasses an important consideration for those theorists concerned with the study of conflict between the organizations that together form a collectivity, such as a construction project organization. In short, inter-organizational conflict management procedures should aim to encourage conflict intensity that is appropriate to the differences and *interdependence* of the organizations. It is therefore desirable that theorists possess a

comprehensive appreciation concerning the constructs of inter-organizational conflict in order for it to be analysed effectively.

#### 4.10 SUMMARY

During this chapter conflict was acknowledged to be a pervasive component of the interaction that normally takes place between construction-related organizations during the design and construction sub-processes of building projects. Conflict was regarded as an inherent attribute of the social behaviour between interdependent organizations, capable of upsetting the normal state of community equilibrium within construction project organizations. Inter-organizational conflict was thought to be complex and contingent upon the network of relationships that typically exist between the construction-related organizations bound by the contracting system. It was argued that social conflict does not always produce destructive outcomes but can actually produce constructive outcomes, and that it is capable of transferring from one location to another in order to become expressed in some transposed form. Hence, it was hypothesized that effective construction industry inter-organizational relationships and improved productivity could be established if the destructive results of social conflict are minimized and the constructive results maximized. A detailed understanding of inter-organizational conflict is critical if operational improvements are to be attained within the UK construction industry.

## 5 INTER-ORGANIZATIONAL CONFLICT THEORY

### 5.1 INTRODUCTION

This chapter will examine the significance that the concepts of inter-organizational relationships hold for the analysis of social conflict between construction-related organizations during the construction sub-processes. Much of the research that has appeared within construction management publications during the last decade has been characterized by both a structural-functional approach to conflict and a strong reliance on a limited number of determinants. It is now apparent that the increasing intersection of the sociology of conflict and inter-organizational theory demands a vigorous and renewed attention to the theoretical and empirical foundations of previous research. The aim of this chapter is to present a cumulative appraisal of the staple theoretical concepts that are pertinent to the analysis of inter-organizational conflict in the UK construction industry. This presentation will include a narrative on the typology and determinants of inter-organizational relationships and interfaces, and the functional and social nature of inter-organizational conflict. The chapter will conclude with a detailed exposition of a salient structural equation model of inter-organizational conflict.

### 5.2 INTER-ORGANIZATIONAL RELATIONSHIPS

There are numerous names given to inter-organizational relationships, e.g. cartels, collectivities, co-operatives, interlocking directorates, joint ventures, organization-sets, partnership arrangements, trade associations, strategic alliances; there are so many that confusion currently abounds within the literature (Alter and Hage, 1993). Organizational behaviour and management theorists, who typically use and combine these terms in many different and often conflicting ways, regrettably fail to make any meaningful attempt to alleviate this particular problem. One scholar who is guilty of this offence is Oliver Williamson (1971; 1975; 1979; 1981; 1985; 1986), the distinguished American institutional economist, who has described *transaction-cost economics* and the governance of contractual relations between organizations.

The transaction cost framework developed by Williamson represents an attempt to combine economic and sociological perspectives on industrial organization (i.e. *intra-* and *inter-*organizational relationships). The key contention of the approach is that, in addition to the costs of production, there are also costs associated with the transaction process that normally takes place between mutually-dependent economic units or groups. In a world without transaction costs all activities would therefore be performed as exchanges between units or groups. But it is the failure of market conditions, however, which allows for many exchanges without prohibitively high governance costs to actually take place that causes organizations to come into existence. When transaction costs are relatively high, it is generally much cheaper to transact within a *hierarchy*, rather than relying upon the *market* allocation of resources. In other words, vertical integration is a natural response to market failure.

Williamson's markets-and-hierarchies approach to organizational relationships, which incidentally builds upon earlier statements by Coase (1952), has inspired several researchers in the field of construction management to investigate its relevance to the contracting system in the construction industry. For instance, Eccles (1981b; 1981a), Levitt and his colleagues (Gunnarson and Levitt, 1982; Reve and Levitt, 1984) and Winch (1985; 1987; 1989; 1995) have contended that transaction costs are central to the study of construction project economics. Eccles, in his incisive analysis of the emergence of a form intermediate between market and hierarchical transaction governance (i.e. the quasi-firm), has remarked that subcontracting in the USA's construction industry is a direct response to uncertainty arising from the complexity of the project and the *bounded rationality*<sup>1</sup> of the firm.

On the other hand, Winch (1995) has suggested that an essential feature of the *construction project organization* (CPO) is that it is a *temporary multi-organization* (TMO) which draws heavily upon the permanent resources provided by functionally organized skill containers (see Section 3.8 Construction Project Organization Systems on page 75 for additional information regarding *construction project organizations* and *temporary multi-organizations*). These functional organizations

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<sup>1</sup> In a situation where the environment is too complex or uncertain for all alternatives to be fully specified, the ability to take rational decisions is limited, or bounded, and transaction costs tend to be higher (Winch, 1989: 339).

are ultimately responsible for developing the productive resources that are necessary for the successful completion of construction projects. The activities performed by these functional organizations generally take the form of recruiting, developing and retaining appropriate human resources; buying and maintaining production equipment; and the development of new production technologies and techniques. The construction project organization is therefore responsible for ensuring that the appropriate level and combination of productive resources is mobilized in order to meet the client's specific needs and requirements. The skill containers that provide the productive resources may either be internal departments of a single organization or completely independent organizations. Winch has contended that it is the distinction between the internal and external provision of resources that is one of the main factors by which construction project organizations may vary. He argues that Williamson has successfully developed an effective theoretical framework for the comprehensive analysis of the factors that influence the choice of such transactions by construction project organizations.

But transaction-cost economics is not only concerned with the evolution of organizations *per se* to govern transaction costs. Gulati (1995), for example, has suggested that transaction-cost economics are also concerned with how the choice of organizational form may vary according to the specific types of exchange relations and activities that are encompassed. This line of thought directed him to consider how existing exchange relations could be restructured in order to economize on transaction costs. Since alliances combine elements of the two extremes of market and hierarchy, Gulati has suggested that firms would enter such arrangements when transaction costs associated with an exchange are intermediate and not high enough to justify vertical or hierarchical integration.

Deciding whether markets or hierarchies are more efficient is of little relevance to the aim of this current Ph.D. research project. This is because both pure markets and pure hierarchies do not require significant levels of co-operation and co-ordination between organizations. Furthermore, the transaction cost framework commences with a static model of competition as the basis for markets and is primarily concerned with which types of rational (i.e. contractual) relationships are most effective (Alter and Hage, 1993). But most crucially, the main reason why

Williamson's transaction cost framework is inappropriate for this particular investigation is that it takes the construction project as the object of its analysis as opposed to the network of construction-related organizations that collectively form the construction project organization. The critical convergence of these key points is clearly reflected in the following statement by Winch:

The construction project is not an economic entity. It does not make resource allocation decisions. The firms making up the project coalition, together with the client, are the resource allocators, the sources of land, labour, and capital upon which any form of production depends.

(Winch, 1989: 336-7)

Consequently, as far as this analysis is concerned, the key question that remains to be answered is not whether a construction project is organized as a market or hierarchy, but: what theories are most appropriate for conceptualizing the networks of inter-organizational relationships that typically exist between construction-related organizations during the construction process? The interest of this study therefore does not fall within the relatively narrow focus of transaction-cost economics but lies somewhere within the constantly shifting domain of inter-organizational analysis.

### 5.3 FRAMEWORKS FOR INTER-ORGANIZATIONAL ANALYSIS

The current knowledge concerning inter-organizational analysis originates from a series of independent studies that considered the relationships between public-sector organizations (e.g. Aiken and Hage, 1968; Hall *et al.*, 1977; Molnar and Rogers, 1979; Rogers and Whetten, 1982; Van de Ven *et al.*, 1974;1975; Whetten, 1981). The general focus of this contemporary research, however, has tended to be very wide and unrelated. This has resulted in the distinct absence of a holistic and systematic framework for the analysis of inter-organizational relationships. Van de Ven and his fellow researchers have agreed with this point by declaring:



At present, most of the work in this area consists of an eclectic smattering of theory and research devoted to the selective topics within the field, but without much consideration for how these theoretical and empirical bits of knowledge relate and contribute to a developing interorganizational theory.

(Van de Ven *et al.*, 1975: 19)

In an attempt to address this problem, Van de Ven *et al.* have reviewed the literature on inter-organizational analysis and subsequently identified the conceptual boundaries and empirical referents within each framework. As a result of this work, they have discovered that it is possible to establish an integrated framework on inter-organizational analysis that enables future research to be systematically focused.

During the initial stages of their work, Van de Ven *et al.* made a unique observation. They noticed that the literature on inter-organizational analysis generally commences with an exploration of the *environment*. This was a fundamental observation to make, because in order to obtain an accurate interpretation of how organizations function and interact with one another, it is first of all necessary to develop a clear and precise understanding of the different categories of environments. Van de Ven and his colleagues have identified three basic approaches to the conceptualization of the environment:

1. The environment as an external constraining phenomenon.
2. The environment as a collection of interacting social agencies (i.e. organizations, groups or persons).
3. The environment as a social system.

Each of these distinct approaches will now be discussed in relation to the current literature on inter-organizational analysis.

#### 5.4 ENVIRONMENT AS AN EXTERNAL CONSTRAINING PHENOMENON

There are a number of organizational behaviour and management theorists who perceive the environment as a social constraining phenomenon that exists external to

the organization but within which the organization must function and interact. For example, Van de Ven *et al.* (1974; 1975) have explained that the environment as an external organizational phenomenon is illustrated in several studies (the majority of which are predominantly *intra*-organizational in nature) that examine the following factors:

1. The general characteristics of the environment.
2. The effect the environment has upon the internal structure and function of the organization.
3. The strategies used by an organization to affect the environment in efforts to achieve certainty and rationality in its domain.

In his book on 'Organizations, Structure and Process', Richard Hall (1972) has defined the environment as the *general* and *specific* influences of organizations. He contends that the general environment includes those conditions that indirectly affect organizations, such as technological, legal, political, economic, ecological and cultural conditions. Furthermore, he maintains that the specific environment is frequently termed the *task* or *relevant* environment, and that it refers to the organizations, groups and persons with which the organization is in direct interaction (a definition very close to the idea of *organizational domain* that will be discussed later in Section 6.3 Operationalization of Constructs on page 163). Aldrich (1975), on the other hand, has defined an organization's task environment as those parts of the environment that have actual or potential relevance to the organization's behaviour. In their appraisal of the literature, Van de Ven and his associates have suggested that environmental variability, complexity and threat are three major dimensions for empirically measuring the task or relevant environment. They have described these dimensions in the following manner:

Environmental variability includes the frequency, degree, and irregularity of changes in environmental activities relevant to an organization's operations. Environmental complexity refers to the heterogeneity and range of external activities, while environmental threat refers to the external sources of stress faced by organizational decision makers.

(Van de Ven *et al.*, 1975: 20)

Generally speaking, those authors who choose to embrace an open-system (i.e. adaptive) perspective as opposed to a closed-system (i.e. non-adaptive) perspective on inter-organizational analysis perceive the environment in terms of these external social phenomena. In most cases they investigate how the environment affects the characteristics of organizations. An example that clearly demonstrates this approach is Levine and White's investigation on exchange as a conceptual framework for the study of inter-organizational relations.

Levine and White's study, which was first published in 1961 and then revised and subsequently republished in 1980, attempts to explain the relationships among community health welfare agencies by viewing them as being involved in an exchange system. Their analysis commences with an examination of organizational domain<sup>1</sup>, population served and services rendered, and then concludes with an investigation of the determinants of inter-organizational exchange relationships. As a consequence of their efforts, Levine and White discovered that in order to attain their goals, organizations must possess and control certain elements that are usually obtained from the environment. The productive resources that organizations typically derive (in varying degrees of intensity) from the environment include: clients to serve; commercial and information communication technology, specialized knowledge and experience, or the funds with which to procure them; and the services of people who can direct these resources to the clients (Aldrich, 1972;1975;1976; Brown *et al.*, 1974; Cook, 1977; Levine and White, 1961;1980; O'Sullivan, 1977). Theoretically, if all of these resources were in infinite supply, there would be little need for organizations to interact or co-operate. However, under actual conditions of scarcity, inter-organizational exchanges with the environment are essential to goal attainment (Levine and White, 1961).

Such dependency on the environment imposes constraints upon organizational behaviour and directly influences the internal functioning and structure of organizations (Van de Ven *et al.*, 1975). Aiken and Hage (1968) have remarked that

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<sup>1</sup> The domain of the organization is a subset of the task environment and refers to the range of activities claimed by the organization for itself as its particular arena of operation. It consists of the specific goals it wishes to pursue and the functions it undertakes in order to implement its goals (Levine and White, 1961).

the greater the organization's interdependence with the environment, the greater the extent to which complexity, decentralization and programme innovativeness become apparent. Harold Guetzkow (1966) has suggested that as organizations react to these external constraining influences, they tend to move towards autonomy. Guetzkow elucidates this concept as follows:

There would seem to be need for insulating devices to secure the isolation of organizations from one another. The mechanical isolation of the organizations, both in terms of physical distance and in terms of a lack of communication channels, aids in the maintenance of autonomy. . . . But perhaps even more interesting are the social devices which have been developed to insure the isolation of organizations. These social processes seem to be of two kinds, those seated within the organizations themselves and those located within supraorganizational processes.

(Guetzkow, 1966: 26)

After appraising the work of Thompson (1967), Van de Ven and his associates have outlined a number of strategies that are available to an organization in order to affect its chosen environment and overcome bounded rationality and achieve certainty with its domain. They have suggested that an organization is able to adopt a variety of buffering mechanisms in order to protect its structural core from the external constraining influences of the environment; thus enabling it to move towards autonomy. Examples include the ability of an organization to influence its interaction processes with the environment in terms of competition and co-operation, which may well include selective bargaining and developing coalitions.

If organizations were self-sustaining entities there would be little need for them to interact with other organizations sited within the environment. It is apparent from the concepts presented above, however, that organizations should not be categorized as self-sustaining entities. Consequently, studies that view the environment as an external constraining phenomenon are therefore correct in examining the properties of organization structure and process as they affect or effect the external constraining environmental conditions (Van de Ven *et al.*, 1975).

## 5.5 ENVIRONMENT AS A COLLECTION OF INTERACTING SOCIAL AGENCIES

Networks of interacting social agencies (e.g. individuals, groups and organizations), are constituted by lateral linkages but, like all other organizational forms (i.e. *intra-* and *inter-*organizational structures), are influenced, to a lesser degree, by their environments and can vary in the degree of autonomy they possess (Alter and Hage, 1993). According to Van de Ven *et al.* (1975), those studies that can be formally classified as inter-organizational tend to perceive the environment as a collection of interacting social agencies. They have therefore suggested that analysis within this category generally commences where studies in the previous category conclude.

Theorists commonly acknowledge that organizations must establish mutual exchange relationships with other organizations in order to derive essential resources and hence attain their independent and mutual goals (Eccles, 1981b;a; Lawrence and Lorsch, 1967;1986; Lorsch, 1975; March and Simon, 1993; Maypole, 1982; Ouchi, 1980; Parsons, 1949;1956a;b;1964; Perrow, 1967; Tosi, 1984; White *et al.*, 1975).

Provided market conditions remain favourable, organizations will inevitably become interdependent and therefore establish networks of exchange relations (Williamson, 1971;1975;1979;1981;1985;1986). In other words, organizations will generally become dependent upon one another in order to attain their individual and mutual goals. This concept is reflected in the following statement by Levine and White:

Organizational exchange is any voluntary activity between two organizations which has consequences, actual or anticipated, for the realization of their respective goals or objectives.

(Levine and White, 1961: 588)

Once again as a consequence of their review of the literature, Van de Ven and his associates have outlined a number of dimensions that researchers have developed that compare the properties of organizations which belong to an interaction network. These dimensions include:

1. **Homogeneity** – the functional and structural similarity of organizations (Aldrich, 1972; Evan, 1965; Levine and White, 1961; Thompson, 1967; White *et al.*, 1975; Zald, 1966)

2. **Domain consensus** – which includes the following comparative characteristics among parties:
  - a. The degree to which an organization's specific goals are disputed (Aldrich, 1972; Levine and White, 1961).
  - b. The compatibility of organizational goals, philosophies and reference orientations (Evan, 1965; Levine *et al.*, 1963; Miller, 1958; Rein and Morris, 1962).
  - c. The amount of goal overlap (Evan, 1965; Reid, 1969).
3. **Awareness of other parties** – the degree of knowledge or ignorance of the goals, services and resources of other parties in the network (Litwak and Hylton, 1962;1980; White *et al.*, 1975).
4. **Stability** – the length of time organizations are a member of the network, and the degree of turnover of the parties (Aldrich, 1972; Caplow, 1964; Thompson, 1963).
5. **Resource distribution** – the amount and type of resources held by each party, and the amount and type of resources needed by each party (Aiken and Hage, 1968; Aldrich, 1972; Evan, 1965), or the balance of power among parties (Thompson and McEwen, 1958).
6. **Number of resource sources** – the number of alternative sources from which an organization can obtain its necessary resources (Aldrich, 1972; Evan, 1965; Levine and White, 1961; Litwak and Hylton, 1962;1980; Zald, 1966).
7. **Size of network** – the number of organizations in the network (Aldrich, 1972; Evan, 1965).
8. **Overlap in membership** – the number of actors representing multiple organizations in the network.

(Van de Ven *et al.*, 1975: 22)

According to Van de Ven *et al.*, two approaches exist within the literature for examining the relational properties between organizations. The first approach examines the *dimensions* of interaction or exchange between organizations, whereas the second approach analyses the *mechanisms* for co-ordination between organizations.

### 5.5.1 Dimensions of Inter-organizational Exchange

The first approach identified by Van de Ven *et al.* (1975) is more general than the second and is exemplified by Marrett's (1971) paper that attempts to synthesize the works of other researchers into a coherent and accurate specification of the dimensions of inter-organizational exchange. Marrett, who was uncertain that the principles explaining *intra*-organizational processes were appropriate for *inter*-organizational problems, sought to determine the characteristics and correlates of inter-organizational relationships. Following a detailed appraisal of the literature, she identified the following four key dimensions for examining the linkage relationships between organizations. Several of these dimensions were suggested, implicitly or explicitly, in some of the original discussions investigated by Marrett. She envisaged that each dimension should be viewed as a continuum rather than a dichotomy. Each should be operationalized in such a way as to preserve the full range of variation implied in describing the dimension as a continuum.

1. **Degree of formalization** – this concept relates to diversity in work experience and is therefore highly appropriate to the inter-organizational arena. It commonly refers to the degree to which exchanges between organizations are given official sanction or agreed to by the parties involved, and the extent to which a co-ordinating mechanism, such as an intermediary, operates between the organizations to co-ordinate the relations (Aiken and Hage, 1968). Marrett has remarked that relationships based on some degree of formalization tend to be relatively enduring and frequently demand a high degree of organizational interdependence.
2. **Degree of intensity** – not only do exchange relations differ in the extent of their formality, they also diverge on the degree of involvement demanded of interacting organizations (i.e. extensiveness). It commonly refers to the level of involvement by organizations to exchange relations in terms of the size of the resource investment required, and the frequency of anticipated interaction (Johns and Demarche, 1951). Marrett has explained that the categories of resource investment required by organizations may be human or non-human.
3. **Degree of reciprocity** – this concept relates to the mutuality of the exchange relations among autonomous groups of organizations. It commonly refers to the direction in which the exchange occurs and the extent to which the conditions of the exchange are mutually agreed upon (Guetzkow, 1966; Levine and White, 1961). Marrett has indicated that the direction in which exchange occurs is variable. For instance, it may be *unilateral* (e.g. where elements flow from one organization to another and no elements are given in return), *reciprocal* (e.g. where elements flow from one organization to another in return for other elements), or *joint* (e.g. where elements flow from two organizations acting in unison toward a third organization).

4. **Degree of standardization** – this concept refers to the extent to which the units of exchange are clearly delineated and governed by fixed rules and formal procedures (Litwak and Hylton, 1962;1980). Marrett has suggested that standardization of exchange is measured by the fixedness of the units of exchange and the fixedness of the procedures for exchange.

Although Marrett's dimensions provide an accurate specification of the correlates and characteristics of inter-organizational exchange, they are unable to explain the motivating factors that influence the formation of linkage relationships between organizations. Cook (1977), however, has suggested that the formation of exchange relations among organizations occurs primarily for two inter-related reasons: firstly, specialization; and secondly, scarcity. As most organizations tend to perform specialized functions, they must therefore exchange with other organizations in order to obtain necessary resources and to market their outputs. According to Levine and White (1980), the scarcity of essential resources impels organizations to restrict activity to limited specific functions (i.e. specialization). The fulfilment of these functions in turn requires access to certain kinds of elements which an organization seeks to obtain by entering into exchanges with other organizations. Since organizations must engage in exchange relations, it is fruitful to conceive of an *inter-organizational field* as a network of exchange relations among member organizations (Warren, 1967).

Warren's concept of the inter-organizational field is based on the observation that exchange between two organizations is affected, in part at least, by the nature of the organizational pattern or network within which they find themselves. He uses this concept to develop a typology of contexts for distinguishing between the different ways in which organizations interact in the decision-making process, as these are influenced by their relationships to an inclusive decision-making structure. Four types of decision-making context are identified by Warren, viz. *unitary*, *federative*, *coalitional* and *social choice*. These contexts are distinguished from each other on the basis of a number of dimensions that are described below in Table 5.1 on page 126.



**Table 5.1 Categories of Inclusive Context**

<b>Dimension</b>	<b>Unitary</b>	<b>Federative</b>	<b>Coalitional</b>	<b>Social Choice</b>
<b>Relation of units to an inclusive goal</b>	Units organized for achievement of inclusive goals	Units with disparate goals, but some formal organization for inclusive goals	Units with disparate goals, but informal collaboration for inclusive goals	No inclusive goals
<b>Locus of inclusive decision-making</b>	At top of inclusive structure	At top of inclusive structure, subject to unit ratification	In interaction of units without a formal inclusive structure	Within units
<b>Locus of authority</b>	At top of hierarchy of inclusive structure	Primarily at unit level	Exclusively at unit level	Exclusively at unit level
<b>Structural provision for division of labor</b>	Units structured for division of labor within inclusive organization	Units structured autonomously, may agree to a division of labor, which may affect their structure	Units structured autonomously, may agree to <i>ad hoc</i> division of labor, without restructuring	No formally structured division of labor within inclusive context
<b>Commitment to a leadership subsystem</b>	Norms of high commitment	Norms of moderate commitment	Commitment only to unit leaders	Commitment only to unit leaders
<b>Prescribed collectivity-orientation of units</b>	High	Moderate	Minimal	Little or none

(Warren, 1967: 406)

As indicated in Table 5.1, the dimensions all vary in ordinal fashion, in the same direction from one extreme to the other, i.e. from the unity context to the social-choice context. Warren contends that there is a natural progression in these four types of contexts from that in which the various units are integrally organized for the division of labour and centralized decision-making, to that in which there is no identifiable central decision-making authority and the units are related to each other only within a general interaction field without provision for centralized decision-making or centralized authority. He has explained that the four contexts should be understood as points along the various dimensions, rather than as discrete states.

Warren's four-fold typology can also be used to describe the relation of one inter-organizational field to another. This concept is clearly elucidated in the following statement:

The four-fold typology lends itself readily to the wheels-within-wheels phenomenon; for a unitary organization may be a member of a federation which, in turn, may be a member of a coalition which is acting to some extent in concert in a larger social-choice decision. Other combinations also occur. At whatever level the analysis is being made, however, the dynamics of the structure of the field are pertinent in attempting to assess the interaction processes taking place.

(Warren, 1967: 408-9)

The relevance of Warren's typology to the analysis of inter-organizational conflict will be discussed in more detail in Section 6.3.3 OPERATING CONFLICT (F<sub>11</sub>) on page 168. In the meantime, however, as the focus of this Ph.D. research project is concerned with the functions and constructs of social conflict in inter-organizational relationships, it is apparent that a meaningful association appears to exist between the two concepts.

### **5.5.2 Mechanisms for Co-ordination between Organizations**

The second approach identified by Van de Ven *et al.* (1975) focuses on the linkage mechanisms between organizations and attempts to determine the contextual circumstances in which alternative co-ordination mechanisms are utilized. They

stipulate that studies following such an approach tend to examine the comparative properties as independent factors and the co-ordination mechanisms as the dependent variables.

Co-ordination between organizations can generally be described as the quality of the exchange between human actors (or boundary role representatives) in a working system and can often be equated to co-operation (Alter and Hage, 1993). Alter and Hage have remarked that it is sometimes useful to conceptualize co-ordination between organizations as a measure of network performance. This concept is exemplified by a number of influential studies, including those conducted by Levine and White (1961) and Benson (1975). Together they have suggested a number of comparative property prerequisites that are essential to the existence of a co-ordination agency, including: *domain consensus*, complementarity of resources, homogeneity of structure, and mutual awareness and stability between the organizations in the exchange relations.

Levine and White, for example, have remarked that domain consensus, which typically consists of the specific goals that an organization intends to pursue and the functions it undertakes in order to implement its goals, is a prerequisite to organizational exchange. They have stated that achieving domain consensus may involve negotiation, orientation and legitimation:

When the functions of the interacting organizations are diffuse, achieving domain consensus becomes a matter of constant readjustment and compromise, a process which may be called negotiation or bargaining. The more specific the functions, however, the more domain consensus is attained merely by orientation.

(Levine and White, 1961: 599)

In the vast majority of cases, the processes of achieving domain consensus constitute most of the interaction between organizations in a social system. Levine and White have maintained that while these processes may not involve the immediate flow of essential elements, they are generally necessary preconditions for the exchange of

elements. This is because without at least minimal domain consensus, there can be no exchange among organizations.

Benson (1975), however, has suggested how the inter-organizational network could be conceived as a political economy concerned with the distribution to two scarce resources, viz. money and authority. He explains that organizations, as participants in the political economy, seek an adequate supply of such resources in order to fulfil program requirements, maintain their domain, ensure their flow of resources, and extend and defend their paradigm or way of doing things. Benson has argued that interactions and sentiments of organizations, as participants in the political economy, are dependent upon their respective market position and power to affect the flow of essential resources. He has maintained that the inter-organizational network is itself linked to a larger environment consisting of authorities, legislative bodies, bureaux, and publics, where the flow of resources into the network depends on developments in the wider environment.

This conceptualization subsequently directed Benson to conceive that inter-organizational relations at the level of sentiments and interactions can be viewed as existing in an equilibrium framework. Benson identified four components of inter-organizational equilibrium; these included: domain consensus, ideological consensus, positive evaluation and work co-ordination. He suggested that these components tend to vary together and become balanced at varying equilibrium levels, and that the equilibrium components are limited by their dependence upon the political-economic sub-structure.

Those studies that therefore conceptualize the environment as a collection of interacting organizations tend to focus upon the network of relationships that occur between the parties in the exchange. According to Van de Ven *et al.*, considerable strides have been made to operationalize and define the relationships between the comparative and relational properties of a given collection of interacting organizations. They acknowledge that considerably more empirically-based research is required with respect to both the comparative and relational properties of inter-organizational relations before the relationships between the two approaches can be discussed in greater detail. It is worthwhile to note, however, that this doctoral

research project intends to undertake a comparative study of inter-organizational conflict in the UK construction industry. The results of this study will therefore contribute significantly to the current knowledge that exists within the discipline of comparative inter-organizational properties, in addition to providing further empirically-based evidence to facilitate the differentiation of the comparative and relational approaches.

## 5.6 ENVIRONMENT AS A SOCIAL SYSTEM

The third and final way to perceive the environment is as a social system. Van de Ven (1975) and his fellow researchers have explained that many efforts have been made to distinguish between the behaviour that occurs between the collection of social agencies (i.e. people, groups and organizations) that constitute the environment, and the behaviour within and among collectivities that function as social systems within the aggregate environment system.

This approach to inter-organizational analysis is once again illustrated by the work of Levine and White (1961) and Warren (1967), and also the work of Aldrich (1975). Levine and White, for instance, have indicated that the attention of research on inter-organizational analysis should be refocused to concentrate on the relationships *among* organizations as opposed to the relationships *between* organizations that are part of an exchange network. They clarify this point in the following statement:

Sociologists have devoted considerable attention to the study of formal organizations, particularly in industry, government, and the trade union field. Their chief focus, however, has been on patterns within rather than between organizations. Studies of inter-relationships have largely been confined to units within the same organizational structure or between a pair of complementary organizations such as management and labor.

(Levine and White, 1961: 583-4)

Warren likewise embraced a similar approach that focused, more specifically, on the relation of organizational behaviour to various aspects of the environment. By selectively adopting Lewin's (1951) notion of the *field* as an appropriate context in

which to investigate interactions among organizations, Warren was able to conceptualize his abstract ideas about the *inter-organizational field*. As already mentioned in Section 5.5.1 Dimensions of Inter-organizational Exchange on page 124, this conception recognizes that interaction among organizations is directly influenced by the nature of their exchange network. To illustrate his opinion, Warren cites the example of two department stores in two cities in the USA. He explains that the interaction between two department stores of a given size will be somewhat different if they are the only two department stores in a medium-sized city from what it would be if they constituted two out of twenty different department stores of roughly the same size in a much larger city.

Aldrich (1975), in his paper that discusses manpower training and related organizations in the USA, has indicated that an open-systems perspective, which focuses on a population of organizations in interaction with its environment (i.e. an organization-set or inter-organizational field), provides an approach to the study of conflict among organizations that is theoretically sound. In focusing on the aggregate relationships that exists between organizations and their environments, as opposed to the *dyadic* relationships between organizations, Aldrich was able to determine what it is that flows between the organization and the environment or other organizations. In order to accomplish this objective, Aldrich conceptualized the environment in terms of input and output domains within a larger task environment. This enabled him to identify some dimensions of the environment that refer in a general way to the elements in the organization's environment. These elements were viewed as either the resources sought after by the organization, or the units that possess or control resources.

From the three examples described above it can be determined that the notion of perceiving the environment as a social system is rather ineffectual. Crucially, as far as this particular investigation is concerned, Parsons (1949; 1956a; 1956b; 1964) provides a notable exception with his general theory of social systems which provides a systematic framework for analysing the environment as a social system. The application of Parsons' general theory to the analysis of inter-organizational relations by focusing on the attributes of *inter-organizational collectivities* (IOC)

will be discussed in greater detail in Section 5.9 Inter-organizational Collectivities on page 139.

## 5.7 APPROACHES TO INTER-ORGANIZATIONAL RELATIONS

Following her detailed appraisal of the literature on inter-organizational analysis, Marrett (1971) identified five principal approaches to inter-organizational relations and representative variables. These approaches are outlined below in Table 5.2 on page 133. It is apparent from the information contained within the table that the distinction between the five approaches rests principally upon the units of analysis.

The first approach identified by Marrett focuses on *intra-organizational properties*. It is derived from studies that have analysed the characteristics of a given organization affecting or affected by its interaction with another. To this effect, Marrett has explained:

Methodologically, no analysis of the interaction itself is required; the researcher need not know the specific organizations with which the central organization has interacted.

(Marrett, 1971: 86)

In her paper, Marrett describes how this approach is exemplified by Aiken and Hage's (1968) study of joint programs in health and social welfare agencies. She explains that their research calls attention to the structural characteristics of organizations engaged in joint activities, wherein the authors contend that such joint efforts require particular organizational characteristics and thus propose that inter-organizational relations exert certain pressures on the component organizations. Marrett also makes reference to Levine and White's (1961) study on inter-organizational exchange relations, claiming that an organization's access to outside productive resources will usually influence its interaction with other organizations in the social system, thus indicating yet another internal organizational force that is related to inter-organizational activity. Therefore, according to Levine and White's emphasis, organizational conditions and processes – whether viewed as cause or effect – are directly related to inter-organizational exchange among formal groups.

**Table 5.2 Approaches to Inter-organizational Relations and Representative Variables**

<b>Intraorganizational Properties</b>	<b>Comparative Properties</b>	<b>Relational Properties</b>	<b>Formal Contextual Properties</b>	<b>Non-organized Contextual Properties</b>
Complexity Innovativeness Openness of communication (Aiken and Hage, 1968)	Similarity of goals Complementarity of resources (Reid, 1964)	Formality Embeddedness Intensity (Leadley, 1969)	Extra-local integration Local integration (Turk, 1970)	Demographic structure Economic conditions (Clark, 1965)
Access to outside resources (Levine and White, 1961)	Compatibility of philosophies (Miller, 1958)	Reciprocity (Johns and Demarche, 1951)	Size of organization set (Evan, 1965)	Concentration of resources (Evan, 1965)
Autonomy from parent body (Johns and Demarche, 1951)	Similarity of structures (Levine and White, 1963)	Cooperativeness (Black and Kase, 1963)	History of interlocking relations (Aiken and Alford, 1970)	Community support (Levine and White, 1963)
Nature of laws, rules and norms (Guetzkow, 1966)		Symmetry (Guetzkow, 1966)		

(Marrett, 1971: 84)



The second approach identified by Marrett focuses on *comparative organizational properties*. It requires that interacting organizations be compared on certain attributes. Marrett explains: "For this approach one cannot study an organization independently of the other with which it has exchanges" (Marrett, 1971: 86). As an example of a comparative concern, Marrett cites Miller's (1958) work on the analysis of co-ordination services among USA social work agencies handling delinquents. According to Marrett, the aim of the delinquency project was not achieved because of the differing attributes of the individual philosophies about delinquency causation and control among the actors. Marrett therefore contends that Miller should have undertaken a comparative analysis of the ideologies of the focal organizations in order to determine the compatibility or conflict of the philosophies.

The third approach, and the one that was central to Marrett's discussion, is termed *relational*. It is so called because its focus is on the linkages or connections between the participating organizations. Marrett explains: "Neither the individual nor comparative properties of the organizations are critical to this position. Rather, the network – its traits and changes – is the unit for study" (Marrett, 1971: 86). Marrett has indicated that to suggest participating organizations are not the units of analysis implies that the organizations themselves are insignificant and can therefore be ignored. She asserts that this is simply not the case in practice, as the data must often be collected from these participants. Therefore, the data are aggregated so that they reflect what have been commonly termed *relational properties*, or the attributes of the linkages between the participating organizations.

The four principle approaches to inter-organizational relations presented thus far have involved only the interacting organizations themselves. Their focus is primarily upon the structural attributes of each organization, the similarities or differences between their individual characteristics and the nature of their linkages or connections to one another. Marrett has indicated that additional work has been completed that moves beyond the focal organizations to the context in which they operate:

Some of the analyses reflecting this interest have centered on the organizational and interorganizational character of the context in which a given interaction takes place. Studies based on this formal contextual approach explore the channels and types of influence on interorganizational relations exerted by the organizational world surrounding such relations. Others, more interested in the nonorganized contextual traits of the environment, describe the effects on exchange produced by larger social processes.

(Marrett, 1971: 87)

Consequently, Marrett defines her fifth and final approach to inter-organizational relations as *contextual*. This broad-brushed approach can be divided into two subgroups that represent the *formal* and *non-organized contextual properties* of the environment.

During her concluding commentary regarding the principle approaches to inter-organizational relations, Marrett asserts that although the literature is organized in terms of five distinct interests, the approaches themselves are not in conflict with one another. She indicates that they should be collectively regarded as complementary approaches to the study of inter-organizational relations. But at the same time, Marrett offers the following advice to those theorists intending to investigate inter-organizational relationships:

A total analysis of interorganizational relations requires a thorough understanding of the interplay between variables operating on all levels. But such an analysis is dependent upon the delineation of these variables. Essential to this are clear definitions and measures of the relevant properties before empirical tests of the correlations among the different variables are possible.

(Marrett, 1971: 89)

Consequently, given that the underlying aim of the present study is to undertake an exploratory analysis of the comparative organizational variables of the construction-related organizations involved in the design and construction sub-processes of building projects, and to examine the correlations that exist among their *exogenous*

and *endogenous* organizational variables, it is anticipated that the theories concerning *comparative* properties will be subsequently advanced.

## 5.8 LEVELS OF ANALYSIS FOR INTER-ORGANIZATIONAL RELATIONS

Much of the research and literature on inter-organizational relationships appears to have originated from the wider field of organizational sociology. During the 1960s, sociologists and other scholars concerned with the behaviour and management of organizations began to look outside the boundaries of organizations as part of their normal research activities. They inevitably discovered that much of what goes on inside an organization is directly or indirectly affected by outside influences of various kinds. In their paper discussing problems in the study of inter-organizational relationships, Hall and Clark (1975) have remarked that the upsurge in material published during the 1970s dealing with the role of technology and other environmental attributes is indicative of this realization and demonstrates that some attempts have been made to shift attention away from the internal workings of organizations.

It therefore comes as no great surprise to discover that the field of inter-organizational relationships is characterized by a number of different paradigms that facilitate its analysis. Hall and Clark have contended that this diversity reflects the richness of this gradually expanding field of inquiry, but at the same time, contributes to the frustration experienced by those scholars with a developing interest in this particular field.

In his introduction to research on inter-organizational relations, Gamm (1981) has described three levels of analysis that have previously been employed in various studies. These levels of analysis include the *organization*, the *inter-organizational dyad* and the *inter-organizational network*. The specific issues and properties associated with the first and last levels of analysis will not be considered in too much detail. However, the specific issues and properties associated with the middle item will be discussed in detail in Section 6.5 Formation of Inter-organizational Dyads on page 204. This is because the underlying aim of this investigation is to undertake a

comparative analysis of the organizational properties of the construction-related organizations involved in the design and construction sub-processes of building projects. Hence, in order to conduct a study of this nature, it is necessary, following Molnar and Rogers' (1979) example, to utilize the *inter-organizational dyad* as the unit of analysis.

### **5.8.1 Organizational Level of Analysis**

This level of analysis is frequently employed under the broad heading of inter-organizational analysis. Gamm has indicated that research conducted at this level is primarily concerned with the specific properties and individual traits of an organization that are most likely to influence its relationship with another organization. Studies conducted in this vein normally tend to focus upon the attributes and behavioural qualities of the personnel, groups and departments that are encapsulated within the boundary of an organization. According to Gamm, the vast majority of research that focuses upon the organization-environment relationship is predominantly concerned with analysing the organizational unit. Seldom does such research consider the relationships that typically exist between two or more organizations. Examples of studies that have been completed using this approach include those conducted by Perrow (1967) and Aiken and Hage (1968).

### **5.8.2 Inter-organizational Dyad Level of Analysis**

This level of analysis is infrequently employed in inter-organizational research. Despite this fact, it is normally the implied focus in much of the theoretical developments in the field of inter-organizational relations (Gamm, 1981). As the term suggests, the inter-organizational dyad is primarily concerned with analysing the relationships between pairs of organizations. The accompanying concepts, relations and interactions of this approach are therefore directed towards phenomena involving more than one organization. According to Gamm, at the dyadic level of analysis, the theorist is predominantly concerned with specifying the nature of the relationships and the similarities and differences between pairs of inter-related organizations relative to standard bases of comparison. He maintains that both the

attributes of the relationship and the comparative properties of the organizations serve to define the inter-organizational dyad. Gamm has also suggested that the relative attributes of the organizations that comprise the dyad and aspects of the inter-organizational relationship may well account for the formation, maintenance or modification of the relations among pairs of organizations. Examples of studies that have been completed using this approach include those conducted by Litwak and Hylton (1962), Paulson (1976), Schmidt and Kochan (1977), Molnar and Rogers (1979) and Lincoln (1984).

### 5.8.3 Inter-organizational Network Level of Analysis

This level of analysis appears less frequently than the organizational level. Gamm has contended that confusion currently abounds within the literature regarding this level of analysis because of the different contexts (usually service systems and communities) and different conceptual bases and nomenclatures that are associated with its application. For example, he has suggested that the inter-organizational network can be defined in general terms as a *system*, or alternatively, as a *field* comprised of organizations and inter-organizational relationships (see Lewin, 1951; Warren, 1967). At this level of analysis, Gamm has asserted that attention can be focused on the structure of the inter-organizational network and its performance relative to a predefined goal or purpose (i.e. an adaptive or systems perspective) or, more specifically, on the interactions and generalized properties of the social field in which the network operates (i.e. an interaction or field perspective). Examples of studies that have been successfully completed using the inter-organizational network (or *inter-organizational collectivity*) level of analysis include those conducted by Benson (1975), Van de Ven *et al.* (1975) and Lehman (1980).

Given the increasingly complex and turbulent environments in which organizations must operate, accurate knowledge in the practice of inter-organizational relations is therefore an essential prerequisite for those intending to research and work in organizations. Unfortunately, despite Gamm's concise account of the levels of analysis employed in inter-organizational research, he has neglected to consider the potential relationship that exists between the last two levels of analysis. It is possible

to adopt a triangulated approach, which accepts both the inter-organizational dyad and network levels of analysis, during an investigation into the relational properties between interacting organizations. For example, the inter-organizational dyad level of analysis could be used to measure the similarities and differences between the interacting organizations relative to standard bases of comparison, whilst at the same time, the inter-organizational network level of analysis could be used to focus on the relational and comparative properties among the organizations that comprise the network. In essence, the triangulated approach would enable a clear and precise understanding of the correlations that exist between the constructs of inter-organizational relationships to be determined. However, this would be an extremely complicated and methodologically challenging study to conduct successfully. This may account for its distinct absence within the reported inter-organizational analyses.

## 5.9 INTER-ORGANIZATIONAL COLLECTIVITIES

In their critique of the frameworks for inter-organizational analysis, Van de Ven and his fellow researchers have stated that: "Inter-organizational analysis can be defined as the study of inter-organizational collectivities as social systems" (Van de Ven *et al.*, 1975: 26). They have explained that the principal components of their definition can be simplified by selectively employing the theoretical concepts developed by Parsons (1949; 1956a; 1956b; 1964), Homans (1960) and Lessnoff (1968).

Using Parsons' conceptual scheme for the analysis of structure and processes of social systems, Van de Ven *et al.* have suggested that the *action system* is comprised of a discrete set or finite series of goal-directed *behavioural acts*. They have reasoned that these acts, under normal circumstances, are frequently directed towards the attainment of specific objectives for the system, and that between the acts there are clearly defined *cause* and *effect* relations. As a social system, however, Van de Ven *et al.* have indicated that interdependent actions are usually performed by various participants in interaction with one another. From their detailed study of Homans' work, Van de Ven and his colleagues have also intimated that these interdependent participants will eventually assume specialized roles and hence develop normative behavioural expectations of each other. If the social system is to

remain stable for any length of time, Van de Ven *et al.* have recommended that the role occupants (or boundary role persons) should develop common norms and values regarding the rights and obligations of participants vis-à-vis other participants.

Parsons, in his highly acclaimed discourse on social systems, has argued that as a *collectivity*, the role structure of the social system is such that it is able to act as a single autonomous unit. After carefully appraising the work of Lessnoff, Van de Ven *et al.* have articulated that Parsons' statement implies:

1. The occupants of one or more roles of the collectivity can make decisions that are binding for the collectivity as a whole.
2. The participants in the collectivity are interdependent in terms of the unit's decision.
3. The collectivity can perform actions [i.e. pursue independent goals and functions] in a manner similar to an individual participant.
4. The collectivity can participate in, and must adapt to, other collectivities or other social systems more encompassing than itself, just as an individual participant does by being a member of the collectivity.

(Van de Ven *et al.*, 1975: 26)

It is readily apparent that the primary participants in an inter-organizational collectivity are two or more interdependent organizations. In most cases, these organizations usually come together in order to form an action system, the intention of which is to attain a predefined mutual objective by selectively performing a discrete set of goal-directed behavioural acts.

As a social system, the actions of the constituent organizations are mutually interdependent, and gradually over time, the organizations duly assume specialized roles and subsequently develop behavioural expectations for each other regarding the rights and obligations of membership in the collectivity (Van de Ven *et al.*, 1975). Van de Ven *et al.* have suggested that, in most cases, two or more interdependent organizations will bind themselves together, often in terms of a formal contractual

arrangement, by performing specialized activities in order to attain a specific objective for a limited period of time. They have further remarked that as a collectivity of interdependent organizations, the role structure is such that the inter-organizational collectivity can act as a single autonomous unit and therefore make informed decisions in order to attain the predefined mutual objectives of the system. Such decisions are often the direct result of the interaction that normally takes place between the various role occupants (or boundary role representatives) within the inter-organizational collectivity. Van de Ven *et al.* have explained that modifications and changes which are necessary in making collective decisions usually occur incrementally through the resource allocation mechanism and changes in legitimation or shifting domains and roles of members within the inter-organizational collectivity.

Adherence to such a prescriptive process therefore authorizes the decisions made to be binding for the collectivity as a whole. These decisions, however, may have unanticipated consequences for certain member organizations of the inter-organizational collectivity. For instance, they may prevent one or two of the member organizations from attaining their sub-optimized objectives. This point is neatly illustrated by Van de Ven *et al.* who have paraphrased a case study investigation that was originally published by Wood (1972). In his study, Wood narrates how a council of USA churches' decision to be involved in the civil rights movement resulted in dwindling memberships and fund-giving to the council's southern churches. He explains that despite such unanticipated consequences, the southern churches decided to continue with their membership, possibly because of a shared higher moral objective.

Wood's case study also illustrates how the inter-organizational collectivity is a particular type of social system that can be clearly distinguished from other collectivities that exist in a hierarchy of systems of social orders. Parsons has demonstrated that the dimensions that appear to differentiate the inter-organizational collectivity from lower level systems (i.e. *intra-organizational* collectivities) and higher-level systems (i.e. societal collectivities) are its primary orientation towards the attainment of a unique level of goals and its basic units of analysis. This notion is confirmed by Guetzkow (1966) who contends that while *intra-organizational* collectivities strive towards autonomous goal attainment, there are assortments of

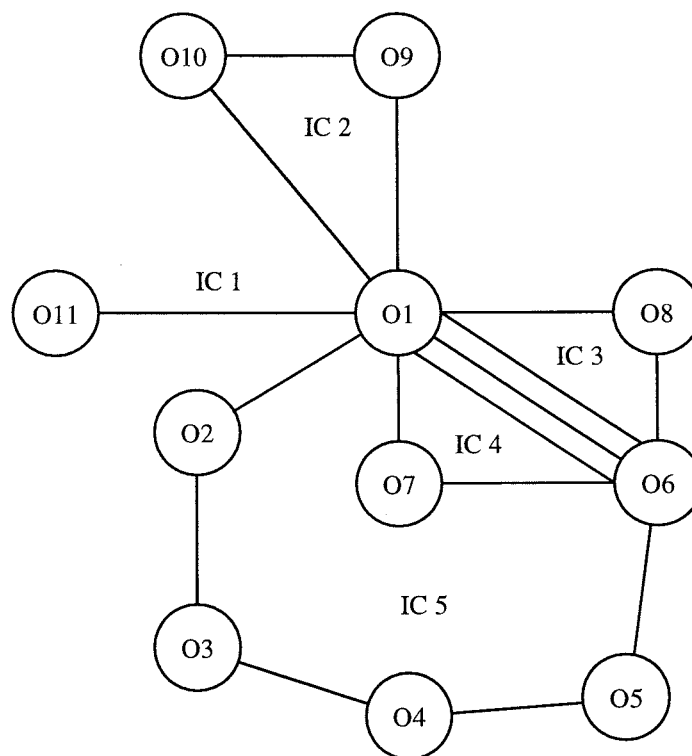


higher-level goals that are unachievable without co-ordinated interaction between quasi-autonomous, *intra*-organizational collectivities.

Even though the *inter*-organizational collectivity can function as a single autonomous unit, Parsons has explained that it is unable to undertake all of the necessary actions for its own existence. Parsons has suggested that only society, which he defines as an *ultimate* or *total* social system, is able to undertake all of the necessary actions for its own existence. Hence, according to Parsons' theories, even though inter-organizational collectivities generally strive towards autonomy, there are a number of higher-level goals that are unattainable by individual inter-organizational collectivities and therefore lie within the realm of the next higher-level system. Coincidentally, Gardiner and Simmons' (1992b; 1992a) analysis of the social relationships that generally exist between the various construction-related organizations that together form construction project organizations provides an example of this next higher-level system. Their organization-system model, which was developed following an investigation into the social relationships that generally exist between the construction-related organizations that are involved in the construction process, clearly fits Parsons' theories regarding the components of social structures. Gardiner and Simmons' model of the construction project organization was described earlier in Section 3.8 Construction Project Organization Systems on page 75.

Van de Ven *et al.* have reported that the specification of the boundaries of the inter-organizational collectivity at an operational level are obscure. They state that since the inter-organizational collectivity can be categorized as an open-system model, it is subject to this conventional limitation when attempting to apply it generally for inter-organizational analysis. However, at a more situation-specific level, they suggest that the inter-organizational collectivity requires a very selective, analytic perspective on inter-organizational analysis.

Figure 5.1 on page 143 illustrates a very simple situation-specific environmental system that has been described by Van de Ven *et al.* The circles (O) in the illustration represent a collection of organizations in the environment, whereas the

**Figure 5.1 Simple Environmental System**

(Van de Ven *et al.*, 1975: 28)

straight lines represent the interdependent social linkages that exist between these organizations. Close examination of the illustration reveals that five inter-organizational collectivities (IC) can be distinguished in the aggregated social environment. For instance, IC1 is the simplest form of inter-organizational collectivity. It represents two organizations that have been linked together for the purpose of attaining goals that are completely unachievable by the organizations independently. IC2, on the other hand, is similar to IC1, except that it contains a greater number of dependent members. But in ICs 3, 4 and 5 some of the dependent member organizations are actually linked together in different inter-organizational collectivities.

Van de Ven and his colleagues have reported that two important observations can be drawn from the latter examples of inter-organizational collectivities. They have stated that while the inter-organizational collectivity may be inter-related and overlapping in membership:

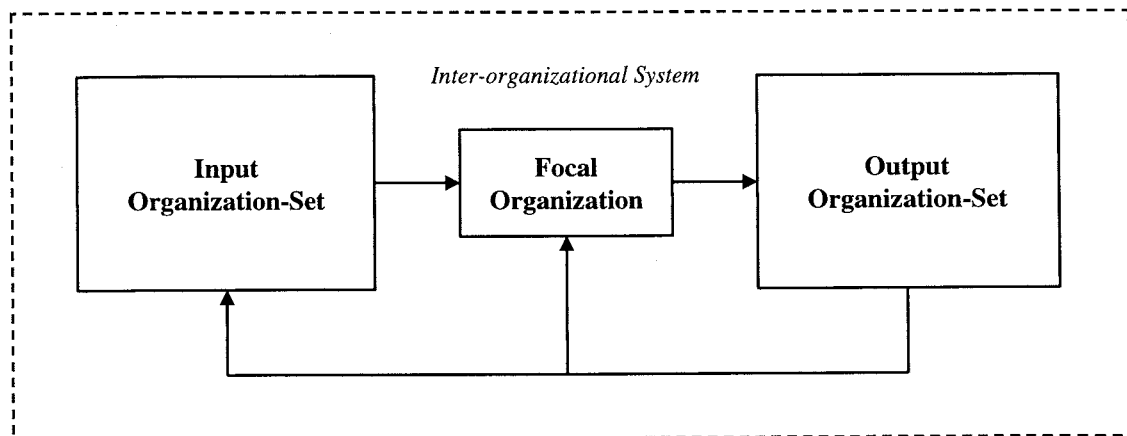
1. The structure and process within each inter-organizational collectivity may be different and may be influenced by its unique collective objective; and
2. The role behavior and specialized activities of a given organization with membership in more than one inter-organizational collectivity are different in each inter-organizational collectivity.

(Van de Ven *et al.*, 1975: 29)

It is important to emphasize that the inter-organizational collectivity is not the open-systems model of inter-organizational relations that Evan (1965; 1978) has referred to in his published work as an *organization-set* model.

In his organization-set model of inter-organizational relations, Evan has taken the organization or class of organizations as the unit of analysis and traced their social interactions with the various dependent organizations that are located within the environment, viz. an organization-set. As in the case of role-set analysis (see Gross *et al.*, 1958; Merton, 1957 for further information regarding *role-set analysis*), Evan has similarly used the concept of a *focal organization* as the point of reference when attempting to analyse role relationships. He has explained that a role-set consists of the complex roles and role relationships that the occupant (i.e. organization) of a given status has by virtue of its authority when occupying that status (Evan, 1965: B-219). Analogous to the role-set model is Evan's conceptualization of the organization-set. In analysing a particular organization-set, Evan has decided to refer to the organization that is the single point of reference as the focal organization. However, as a consequence of adopting an open-systems perspective, Evan has recommended that the organization-set should be partitioned into an *input-organization-set* and an *output-organization-set*. He has explained that the input-organization-set represents a complementary group of organizations that provide essential resources to the focal organization, whereas the output-organization-set refers to all those organizations which receive goods and/or services, including organizational decisions that are generated by the focal organization. Figure 5.2 on page 145 illustrates some of the elements that comprise an organization-set model of inter-organizational relations.

**Figure 5.2** Elements of an Organization-set Model of Inter-organizational Relations



(Evan, 1978: 80)

For example, if organization O1 in Figure 5.1 on page 143 is considered to be a focal organization by Evan's definition, then the collection of organizations that are directly linked with O1, including O1 itself, would constitute an organization-set. But from Parson's perspective, it can be deduced that O1 is actually a common member of five separate inter-organizational collectivities, viz. IC1 through to IC5. Furthermore, Van de Ven *et al.* have reported that it would be normal to expect that organization O1 has different motivations that drive its membership within each separate inter-organizational collectivity and that it would probably adopt completely different role behaviours in each collectivity.

Conceptualization of the inter-organizational collectivity therefore enables inter-organizational analysis to be considered a focused methodological approach. This is because the theoretical framework requires the researcher to identify and dissociate a situation-specific environment and to isolate specific clusters or collectivities of independent organizations that are mutually linked together for the purpose of achieving special-purpose objectives. Membership within the collectivities may well overlap. Inter-organizational collectivities, however, are not usually distinguished by their member organizations, but as Parsons has suggested, by their functional goals, role structure and behaviour as a social action system. Hence, the inter-organizational collectivity is a unique type of social system that can be differentiated from other social collectivities in terms of:

1. Its units of analysis, a collectivity of primary, productive organizations that are dependent upon one another in some fashion; and
2. Its orientation toward the attainment of goals that are unachievable by organizations independently and require co-ordinated action by the member organizations in the collectivity.

(Van de Ven *et al.*, 1975: 33)

The basic unit of analysis for inter-organizational studies is considered to be the organization (see Section 5.8.1 Organizational Level of Analysis on page 137 for further information about this point). But as Van de Ven and his colleagues have articulated, because the inter-organizational collectivity can function as a single autonomous unit, it is quite possible that many behavioural acts and events of the inter-organizational collectivity may not be simply explained in terms of analysing the behaviour of the constituent organizations. They have explained that these observable social facts are collective events that originate from the actions of the social system and are therefore property of the inter-organizational collectivity itself. For instance, Warren has reported that:

... one can describe and analyze as a single system of interaction any group of organizations whose properties may differ from those of the interacting organizations themselves and cannot be reduced to properties of these individual organizations.

(Warren, 1971: 54-5)

Consequently, as Van de Ven *et al.* have contended, the appropriate unit of analysis for examining the inter-organizational collectivity must *include* the social system itself.

## 5.10 INTER-ORGANIZATIONAL COLLECTIVITIES AND SOCIAL CONFLICT

It is apparent from the theoretical frameworks that have been presented thus far that alternative conceptualizations of the environment developed in organization theory have generated three inter-related propositions about the nature of the environment.

Firstly, it has been accepted from Warren's (1967) work that the environment of an organization consists of a specific collection of interacting organizations that form an inter-organizational field. Secondly, it has been demonstrated from published research by Levine and White (1961), Warren (1967), Aldrich (1975) and Benson (1975) that the various interactions between these dependent organizations produce inter-organizational networks which are themselves complex social systems. Thirdly and finally, it has been deduced from the last two propositions, and also from information provided by Parsons (1949; 1956a; 1956b; 1964) and Van de Ven *et al.* (1975), that the inter-organizational network or inter-organizational collectivity is a highly organized, hierarchical social system.

Social conflict at the *interfaces* of inter-organizational collectivities may well be inevitable (Blake and Mouton, 1984; Brown *et al.*, 1974). Lawrence and Lorsch (1967; 1986), for instance, have actually discovered that internally differentiated organizations normally experience difficulties when attempting to integrate their various subsystems. Inter-organizational collectivities, which are frequently composed of even more differentiated subsystems or social units, can therefore be expected to experience at least the same amount of social conflict at their interfaces. This is primarily because the interfaces of inter-organizational collectivities generally unite organizations with common and conflicting interests and with potential for both compatible and non-compatible behaviour.

In his textbook entitled: 'Managing Conflict at Organizational Interfaces', David Brown (1983) has stated that the success of one or both organizations is dependent upon the effectiveness of their *inter-organizational interface*. He has explained that because critical or productive resources (such as clients to serve; technology and specialized knowledge, or the funds with which to procure them; and the services of people who can direct these resources to the clients) may not always be effectively exchanged at inter-organizational interfaces, organizations are generally susceptible to *inter-organizational conflict*. Furthermore, since inter-organizational interfaces are located in-between interdependent organizations, social conflict is more likely to arise because of uncertainties surrounding authority, responsibility and appropriate behaviour. This conception is confirmed by Blake and Mouton (1984) who have defined organizational interface conflict as the erosion of trust in a relationship in

which neither group has the authority to control the other and neither can appeal to a higher level to resolve their differences.

Inter-organizational interfaces are therefore inherently susceptible to social conflict because of their unavoidable position between interdependent social units (or organizations). However, it must be remembered that social conflict at the interfaces between organizations is not necessarily undesirable (Ball, 1988; Coser, 1968; Rahim, 1992b; Simmel, 1955). Because there is a notable trend towards increasing levels of interdependence between organizations (Aiken and Hage, 1968; Brown, 1983; Mindlin and Aldrich, 1975; Molnar, 1978; Schmidt and Kochan, 1972), the effective management of dysfunctional inter-organizational conflict is therefore essential. In this respect, Brown has explained that the interfaces between diverse interdependent organizations can significantly affect organizational performance. In other words, the more interdependence there is between interacting organizations, the higher the expected costs will be to effectively control the dysfunctional social conflict at their interfaces. Consequently, interdependence between interacting organizations increases the likelihood of dysfunctional social conflict arising at the interfaces of inter-organizational collectivities. This hypothesis is intrinsic to this Ph.D. research project.

In closing, Alter and Hage (1993) have argued that the study of inter-organizational interfaces is fundamental to the development of inter-organizational conflict theory.

#### 5.11 ELEMENTS OF INTER-ORGANIZATIONAL INTERFACES

Social conflict at the interfaces within and between inter-organizational collectivities generally involves a bewildering array of *exogenous* and *endogenous* organizational variables. Examples include people; organizational sub-units; visible and invisible social, political, economic and legal forces; stable and unstable social relationships; and simple and complex environmental contexts. Inter-organizational interfaces can vary substantially according to their degree of social and structural organization. Previous interdependence and social interactions can similarly influence the evolution of inter-organizational interfaces (Brown, 1983).

During his authoritative standard on managing conflict at organizational interfaces, Brown has described a simple framework for analysing social conflict at inter-organizational interfaces. Brown has conceded that his framework is similar to the efforts to analyse social conflicts by Adams (1976), Thomas (1976) and Katz and Kahn (1978). However, when compared with these frameworks, Brown's approach tends to focus more on the interface organization. For example, his framework, which is founded upon the simple observation that continued interactions between interdependent social units (i.e. organizations) produces interfaces that are themselves social units, acknowledges that continued contact between the organizations encourages the development of boundaries and shared expectations that regulate the social interaction of the interface participants (or boundary role representatives). In other words, Brown has fully accepted that the inter-organizational interface becomes a socially-organized unit as proclaimed by Parsons (1949; 1956a; 1956b; 1964) and Van de Ven *et al.* (1975).

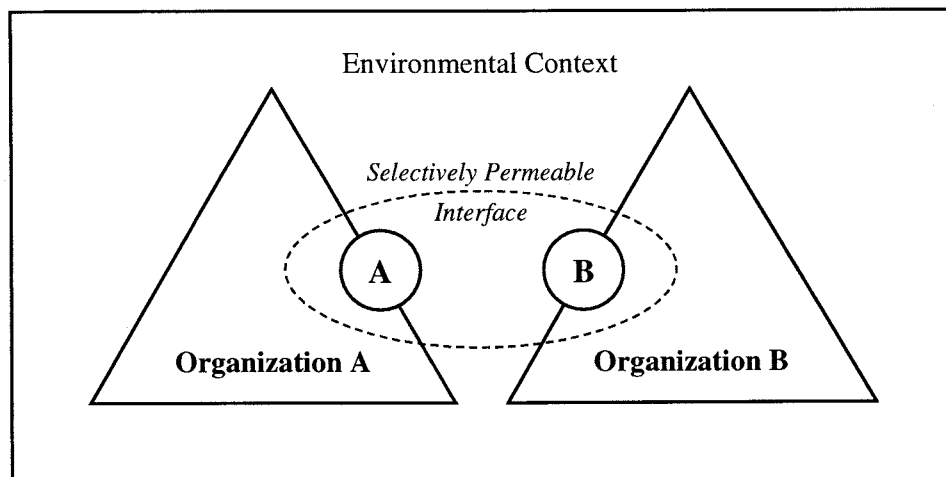
In the framework proposed by Brown there are four elements to be analysed in order to comprehend social conflict at inter-organizational interfaces. These elements are illustrated below in Figure 5.3 on page 150 and include:

1. The inter-organizational *interface* itself
2. The parties or *organizations* to that interface
3. The party or *boundary role person* (or representative)
4. The larger or *environmental* context

(Brown, 1983: 21)

Brown has explained that these elements are to be approached at different levels of analysis. For example, the party or *boundary role persons* are the people who represent their parties to the external world; the parties or *organizations* are socially organized units; the larger or *environmental context* may include other organizations, collectivities and societies; and the *interfaces* themselves are intermediate between the parties and the larger context. Because these elements are at different levels of analysis, Brown has argued, in a similar fashion to Rahim (1992b), that the causes and effects of social conflict at the inter-organizational interfaces occur at multiple



**Figure 5.3 Elements of an Inter-organizational Interface Model**

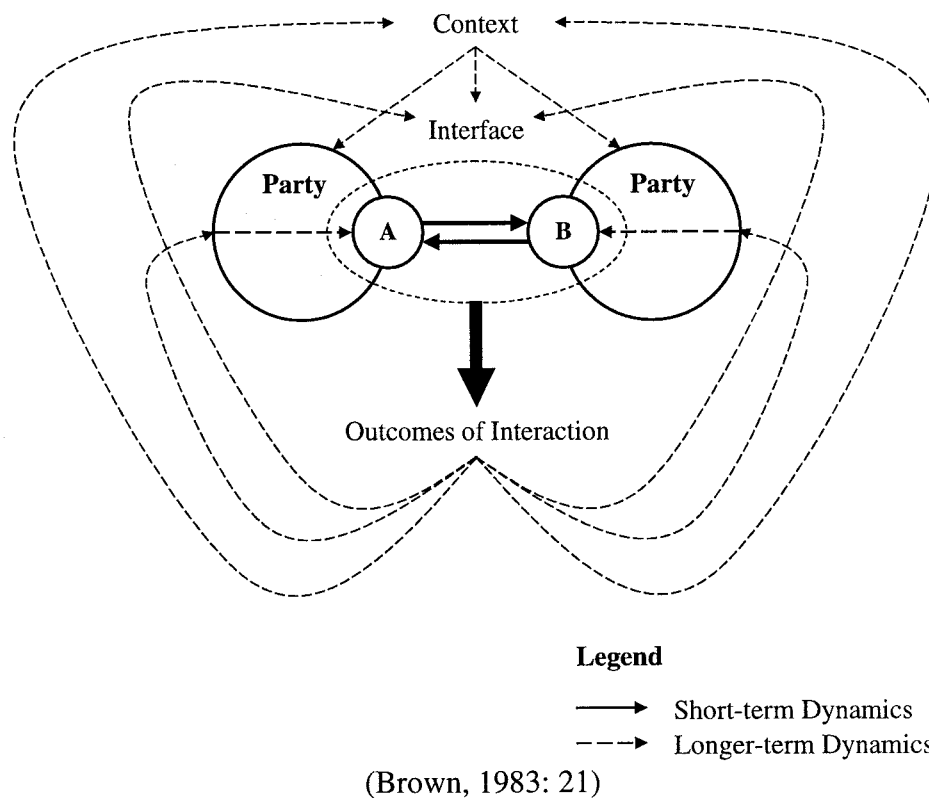
(Adapted from Brown, 1983: 14)

levels. This is because events and social conflicts at the inter-organizational interface are usually the result of the interplay between the four elements over time. According to Brown, this interplay tends to be relatively visible and rapid but may occasionally be completely invisible and slow. He has indicated that such interface events usually involves the following two dynamics:

1. The long-term interplay of parties, interface context and interaction outcomes that alter interface definition and organization; and
2. The short-term interaction of representatives' perceptions, communications and actions within the interface.

Brown's framework, which has both static and dynamic perspectives, is illustrated below in Figure 5.4 on page 151. In the illustration, the solid arrows between the party or boundary role representatives define the immediate action and reaction of their social interaction, whereas the hatched lines between the outcomes of context, parties and interface define the longer-term interaction at the next higher level of analysis. Brown has explained that the two dynamics are not independent.

The components or elements of Brown's framework will now be discussed in greater detail, with attention primarily focused upon aspects of the interface, organizations,

**Figure 5.4 Dynamics at Inter-organizational Interfaces**

boundary role representatives and environmental context that are pertinent to a detailed understanding of social conflict at inter-organizational interfaces. This level of understanding is essential for the further theoretical development of this Ph.D. investigation and the subsequent analysis and evaluation of the research findings.

### 5.11.1 Inter-organizational Interfaces

Brown has stated that there are two attributes of inter-organizational interfaces that are of particular interest to organizational behaviour and management theorists. The first attribute is concerned with the establishment of appropriate criteria for the definition of inter-organizational interfaces, whereas the second attribute is concerned with the development of suitable mechanisms for the structural organization of inter-organizational interfaces.

According to Brown, the definition of an inter-organizational interface appears to largely depend upon the nature of the goals and interdependencies that encourage the

organizations to interact with one another. Indeed, as in the vast majority of cases, organizations will tend to be interdependent on one or more dimensions. Brown has argued that many inter-organizational interfaces are defined by *shared tasks*: this is where dependent organizations need each other in order to accomplish their mutual objectives. In addition to this prevailing social arrangement, Brown has explained that some interfaces are based on common social identifications, common authorities or physical space.

The general structure of an inter-organizational interface reflects its capacity to influence or constrain events within it, through the variation of boundary permeability or the regulation of internal activity (Brown, 1983). Brown has remarked that in *tightly organized* interfaces the external boundaries are comparatively closed and the regulation of internal activity is relatively tight. The discretion and flexibility of the boundary role representatives are severely restricted in this scenario. However, in *loosely organized* inter-organizational interfaces, the external boundaries are completely open and the regulation of internal activity is fairly loose. In such cases, the boundary role representatives are free to interact with each other at their own discretion.

Even though most organizations tend to require inputs from and outputs to their environments in order to expand and survive, the permeability of their boundaries to essential resources will almost certainly dictate their longevity. Some organizations are essentially closed and therefore unable to transport essential resources across their boundaries. Others, which are positioned at the opposite end of the boundary permeability continuum, are relatively open and therefore able to transport essential resources across their boundaries. It is therefore clear that a variety of mechanisms must influence transactions at social boundaries. Brown has suggested that such mechanisms may well include stringent organizational rules, procedures and roles, and even departments to control inputs and outputs of critical information, personnel and other essential resources.

It is apparent that boundary permeability and internal activity regulation tend to reinforce each other. Brown has corroborated this notion by explaining that closed external boundaries protect tight internal regulation from disruption by external

forces, whereas tight regulation supports control of boundary transactions. Open external boundaries, however, permit unexpected inputs and outputs that loosen internal regulation, whereas loose internal regulation allows open exchange of inputs and outputs. It can therefore be summarized that *under-organized* inter-organizational interfaces typically have ill-defined and excessively open external boundaries, but in complete comparison, *over-organized* inter-organizational interfaces have boundaries that are clearly defined and excessively closed.

### 5.11.2 Inter-organizational Parties

The parties or organizations at inter-organizational interfaces can be regarded as social units that possess different interests but with an interdependent fate that compels them to interact with one another (Aldrich, 1972; Alter and Hage, 1993; Brown, 1983; Evan, 1965;1978). Brown has suggested that although organizational conflict generally involves individuals, many of the problematic social conflicts that typically occur between organizations involve individuals acting for organizations. This observation has enabled Brown to define two attributes of inter-organizational parties or organizations that are relevant to the study of social conflict at their interfaces.

The first attribute identified by Brown is concerned with the social, political, economic and legal interests of the parties, whereas the second attribute is concerned with the internal characteristics of the parties (i.e. the exogenous organizational variables) that directly and indirectly influence their activities at the interface.

Theoretically, the interests of parties can range from the wholly conflicting (i.e. where a gain by one party is reflected by a loss to the other party) to the wholly common (i.e. where a gain by one party is automatically conferred by a gain to the other party). In practice, however, most interface arrangements involve what Brown has termed *mixed interests*: this is where the parties have some common and some conflicting interests. Thus, as parties are by definition interdependent, they should frequently share some common and some conflicting interests at the interface.

According to Brown, the analysis of the parties' interests should always include an account of how important the interdependencies are to them. For example, some inter-organizational interfaces are important to both parties, therefore each party will commit resources and power to their representatives. Other inter-organizational interfaces are important to only one party, therefore the other party will tend not to invest resources and power in representatives.

The relevant internal characteristics of the inter-organizational parties (or the endogenous organizational variables) are normally dependent upon the specific situation at the interface. Party definition and organization generally influence events at the inter-organizational interface (Brown, 1983). For example, those parties that are mobilized for social conflict typically present the following relevant internal characteristics: high internal cohesion, concern with tasks, relatively autocratic leadership, tight structure, and member conformity and loyalty. Brown has suggested that tightly organized parties are more likely to participate in or provoke social conflict at inter-organizational interfaces when compared to those parties with low cohesion, high concern for others, loose internal structure and relatively democratic leadership.

### **5.11.3 Inter-organizational Boundary Role Representatives**

Events at inter-organizational interfaces are generally influenced by the roles individual party representatives occupy and their personal skills and attributes (Aldrich, 1972; Brown, 1983; Currall and Judge, 1995; Evan, 1978; Kochan, 1975; Paulson, 1976). Because representatives at inter-organizational interfaces occupy boundary roles, they generally symbolize their parties to the external environment. According to Brown, such roles and requirements inevitably create ambiguity and social conflict at the interfaces. This is because boundary role representatives must respond both to the expectations of their own parties and to the expectations of the boundary role representatives of the other parties.

Brown has contended that the personal attributes of the individual boundary role representatives contribute to the manifestation of social conflict at inter-

organizational interfaces. He has also suggested that the skills of boundary role representatives influence the occurrence of social conflict at the interface. The nature of the representative behaviour at inter-organizational interfaces is therefore determined by the joint operation of the elements of formal roles and personal attributes. In a specific situation, however, some elements will tend to contribute more than others will.

#### 5.11.4 Inter-organizational Context

The inter-organizational context is the whole field or environment within which both the interface and the parties are embedded (Alter and Hage, 1993; Brown, 1983; Warren, 1967). Brown has explained that the *immediate context* includes the larger social unit or units, of which the parties are sub-units, as well as third parties that are particularly interested in the inter-organizational interface. The *larger context*, however, has been described by Brown as the social, political, economic and legal forces that create opportunities for and constraints upon the inter-organizational interface.

Emphasis on the elements of inter-organizational interfaces as the centre of attention is uncommon, though not unprecedented, in the study of social conflict between mutually dependent organizations. Brown has suggested that inter-organizational interfaces may be fruitfully analysed in terms of four inter-related elements: the definition and organization of the interface itself; the interests and attributes of the parties (or organizations); the impacts of the immediate and larger environmental contexts; and the roles and personal attributes of the boundary role representatives. He has further explained that these four elements are frequently combined in order to produce dynamics at two levels: the inter-personal dynamics between the boundary role representatives; and the interplay between the boundary role representatives' interaction, context and parties (or organizations) that alters or maintains the inter-organizational interface.

Regrettably, analysing complex social situations between mutually dependent organizations is not as simple as Brown's framework implies. In reality, social

scientists have found the process to be far more complicated than they first imagined. Rahim (1992b), for instance, has commented that the process is analogous to a chef gradually peeling away the delicate layers of an onion. That is to say, Rahim has implied that the investigation of social conflict between organizations is more akin to the progressive discovery of new levels of understanding. The order of questions that are appropriate to diagnosing specific situations is therefore dependent upon the nature of the situations themselves. The theoretical framework developed by Brown can therefore be regarded as a *sensitizing concept* that suggests areas of interest rather than a specific point-by-point analytical procedure. In order to gain an appreciation of an appropriate analytical procedure for investigating social conflict between organizations, it is necessary to evaluate previous studies that have attempted to diagnose and model social conflict between mutually dependent organizations that together form a specific inter-organizational collectivity.

## 5.12 COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT

Organizational behaviour and management theorists have been concerned for some time with the study of social conflict within organizations. They have investigated conflict between staff and line management (see Dahrendorf, 1959; Dalton, 1959; Rahim, 1983; Roloff, 1987), between departments (see Baron, 1990; Crozier, 1964; Litterer, 1966; Rahim, 1985;1992a;b; Thomas, 1976;1992; Walton and Dutton, 1969), and between labour and management (see Brett *et al.*, 1990; Kerr and Seigel, 1954). Social conflict between organizations, however, has tended to receive much less attention, with most of it being focused at the theoretical rather than the empirical level (see Litwak and Hylton, 1962; Ridgeway, 1957; Warren, 1967). Aldrich (1975) has contended that the specific problem of studying social conflict between organizations, i.e. inter-organizational conflict, is part of the larger problem of investigation relations between organizations, i.e. inter-organizational analysis. However, in a paper that succinctly reviews inter-organizational conflict as an emerging field of investigation, Di Stefano (1984) has presented an interesting paradox to Aldrich's assertion. He has remarked that even though inter-organizational analysis has become a significant feature of contemporary

sociological inquiry, the role of social conflict – as an attribute of inter-organizational analysis – has tended to suffer from severe scholarly neglect.

A notable exception to this underlying trend is a unique study conducted by Molnar and Rogers (1979) that examines social conflict between pairs of mutually dependent organizations. Molnar and Rogers' study is influential because it concisely explains social conflict on the basis of the similarities and differences of the interacting organizations. It also presents one of the most recent empirically-derived models to appear within the field of inter-organizational conflict. As both Molnar and Rogers are sociologists, their general orientation to the problem of inter-organizational conflict tends to emanate from a sociological perspective. The theoretical propositions developed by Molnar and Rogers therefore sit comfortably along side the general theories of social systems propounded by Parsons (1949; 1956a; 1956b; 1964).

Two distinct categories of inter-organizational conflict have been postulated by Molnar and Rogers, viz. *structural conflict* and *operating conflict*. The distinction that they have made between the structural components of conflict as contrasted with those of operating conflict is somewhat familiar to the argument of this work. This is because Molnar and Rogers have invoked the fundamental conceptualizations of Coser (1968) to substantiate and theoretically underpin their comparative model of inter-organizational conflict. For example, in his textbook describing the functions of social conflict (see Chapter 4 for further information regarding the *functions* of social conflict), Coser has developed a formulation that is focused on “conflicts over matters of principle” and “conflicts over matters presupposing adherence to the same principle” (Coser, 1968: 74). Molnar and Rogers have consequently provided additional theoretical support for Coser's formulation and similarly adopted his unique dichotomization of social conflict.

Structural conflict has been described by Molnar and Rogers as the disputes that naturally occur over the basic identities or public images that are claimed by the interacting organizations. They have stated that structural conflict generally arises from attempts to establish or define a relationship and reflects a basic disagreement over the legitimate prerogatives and fundamental structure of each organization's



responsibilities. In the case of operating conflict, however, Molnar and Rogers have remarked that it usually occurs when one organization disputes the position of another over some common point of interest, but does not seek to change the other's ultimate control over the matter. They have reasoned that operating conflict may occur within a pre-established or patterned set of relationships, predominantly occurring over the co-ordination of operating procedures and activities. Molnar and Rogers have concluded that operating conflict is typically encountered during the process of discovering how basic interests are complementary or coincidental within a relationship.

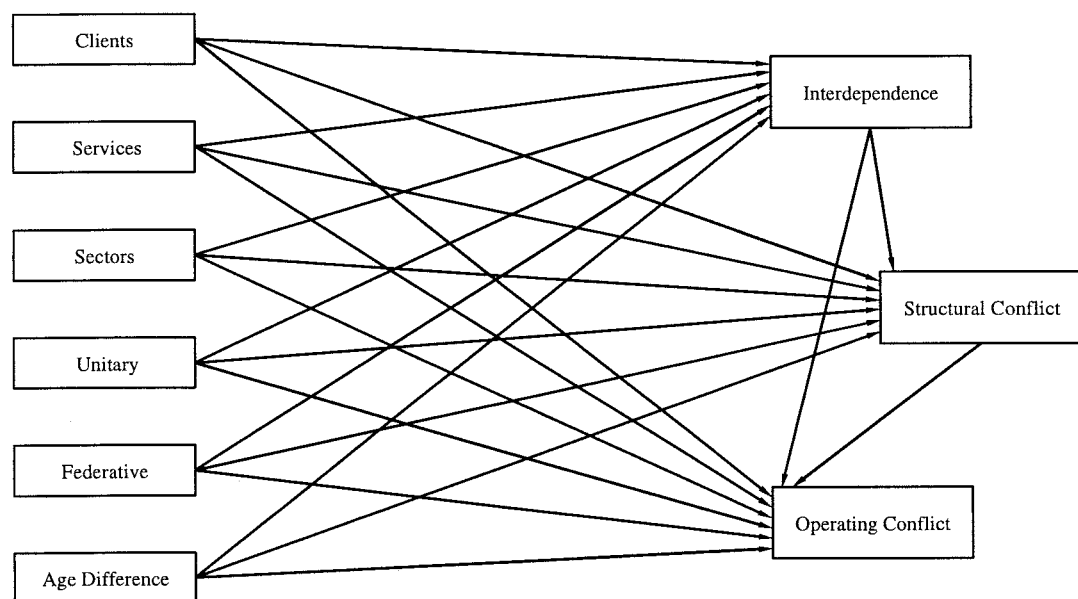
Pairs of public service agencies in the field of natural resource management in the USA were studied by Molnar and Rogers in order to determine how such comparative investigation techniques could inform inter-organizational relations. The unit of analysis employed during their study was the *inter-organizational dyad*. According to Paulson (1976), the dyadic level of analysis forms a linkage mechanism between lower level systems (i.e. *intra-organizational* collectivities) and higher level systems (i.e. *inter-organizational* collectivities). In its truest sense, the dyadic level of analysis is the most elemental systemic unit, since it focuses on organizational inter-relationships by taking two organizations at a time (Paulson, 1976). The similarities, or more specifically, the dyadic relationships that were examined by Molnar and Rogers, constituted a large number of organizational variables that were intended to reveal the endogenous relationships between structural and operating conflict. Molnar and Rogers also included in their research design a measure of the extent to which *interdependence* existed between the interacting organizations.

Inter-organizational conflict was operationalized by Molnar and Rogers by the application of survey questionnaires that employed a multipoint Likert scale. Molnar and Rogers collected data during interviews conducted with top-level administrators (or boundary role representatives) in thirty-nine county offices of federal, state and county natural resource management agencies in five non-metropolitan mid-western counties in the USA. The group of agencies that were located within each of the five counties was then defined as a particular *organization-set*, as recommended by Evan (1965). Each organization-set was then combinationally arranged in order to form all possible inter-organizational dyads. Molnar and Rogers then summed the scores

from these instruments across the two measures of social conflict, which then provided them with an index to both forms of conflict in the inter-organizational relationship.

In addition to the three endogenous variables that represent interdependence, structural conflict and operating conflict, Molnar and Rogers' comparative model also included six exogenous variables as illustrated in Figure 5.5 immediately below. The six exogenous variables included the clients served, the services rendered, the sectors of involvement in the inter-organizational field, the common relations to a higher administrative authority, the common relations to a co-ordinating body and the relative age or length of service of each organization. The characteristics of the exogenous variables enabled Molnar and Rogers to evaluate and determine the level of interdependence that develops between organizations and the degree of structural and operating conflict in an inter-organizational relationship. By emphasizing these exogenous variables within their structural model, Molnar and Rogers attempted to conceptualize *organizational domain*: a concept that is discussed at length within the literature on inter-organizational relations (see Meyer, 1975; Trist, 1983 for further information regarding inter-organizational domains).

**Figure 5.5 A Comparative Model of Inter-organizational Conflict**



(Molnar and Rogers, 1979: 415)

The distinctiveness of Molnar and Rogers' study was underscored within the field of inter-organizational analysis by its utilization of a recursive path model in order to accomplish multivariate analysis. Moreover, the empirical results of Molnar and Rogers' investigation appear to confirm their hypothesis regarding the structural cleavages of inter-organizational conflict. Incidentally, where this research proves to be most constructive is in its capacity to interpret the everyday problems of commercial life. In essence, it identifies where and how social conflict is most likely to occur between interdependent organizations during their *modi operandi*.

In concluding their article, Molnar and Rogers outline several recommendations that theorists should consider when formulating future studies. First of all, and most importantly, they suggest that researchers should focus their attention on comparative properties as a means of explaining the dynamics of inter-organizational relations. In other words, scholars should not rely upon quantitative data analysis techniques for the determination of the dominant factors that influence the occurrence of social conflict in inter-organizational relationships but should recognize the benefits of utilizing qualitative data gathering methods and analysis frameworks. Molnar and Rogers go on to explain that such an approach would lead to increased value and richness during the interpretation of prospective results. The second and most predictable recommendation made by Molnar and Rogers is that attention should also be given to the specification and measurement of additional comparative variables. Several of the secondary dimensions suggested by Molnar and Rogers, which they instinctively believe have important effects on inter-organizational relationships, are pertinent to the context of this Ph.D. investigation; they include a variable which locates an organization within a co-ordination space of responsibility and authority, a variable which recognizes reputation (Molnar and Rogers do not stipulate an ideal organizational level of analysis), and a variable which acknowledges boundary personnel differences. This doctoral research project therefore intends to extend and replicate Molnar and Rogers' study in the field of inter-organizational relations by addressing these specific recommendations, but on this occasion within the context of the construction industry in the north-eastern region of England.

### 5.13 SUMMARY

This chapter has outlined the theoretical concepts that are pertinent to the analysis of social conflict in construction industry inter-organizational relationships. It was argued that an essential feature of construction project organizations, which tend to draw upon the resources provided by their functionally-organized component organizations, is their ability to be conceptualized as temporary multi-organizations. Inter-organizational exchange was defined as the activity between two functional organizations during the process of realizing their independent project-related goals. It was contended that inter-organizational exchange is affected, in part at least, by the nature of the organizational pattern or social network within which the organizations are commonly located, and was defined as an inter-organizational collectivity. Inter-organizational interfaces were considered to be socially-organized units located between inter-related organizations, which are inherently susceptible to conflict and significantly influence organizational performance. Molnar and Rogers' comparative analysis of inter-organizational conflict was introduced as an exemplar of inter-organizational relationship analysis. Furthermore, it was indicated that Molnar and Rogers' comparative model would be modified and form the basis of a focused investigation of construction industry inter-organizational relationships and social conflict therein. The comparative organizational properties approach to inter-organizational analysis was outlined as the perspective from which this study would be conducted, utilizing the dyad as the level of inter-organizational analysis.

## **6 METHODOLOGY AND HYPOTHESIZED MODEL**

### **6.1 INTRODUCTION**

The aim of this chapter is to present the theoretical framework and methodological rationale of the current investigation into social conflict in the UK construction industry. The two dominant approaches have been used to methodologically anchor this study into construction industry inter-organizational relationships. Recognition is given to the value and richness of this investigation which has utilized both the quantitative and qualitative approaches in order to develop a bespoke mixed method strategy. The format and applicability of the mixed method approach used during this study will develop in form and substance throughout this chapter. The chapter will commence with the specification and operationalization of key constructs, which will lead to the construction of a hypothesized structural equation model. The inter-organizational unit and level of analysis for exploring the correlation between the constructs of the hypothesized model will be presented. A detailed discussion of the data collection and analysis strategy to be adopted during this study will conclude the chapter.

### **6.2 CONSTRUCTION OF STRUCTURAL EQUATION MODEL**

Following their study of conflict between pairs of public-sector agencies in the field of natural resource management in the mid-western counties of the USA, Molnar and Rogers (1979) presented a recursive model to explain variance in the endogenous variables, interdependence (see Section 6.3.1 INTERDEPENDENCE ( $F_9$ ) on page 164), structural conflict (see Section 6.3.2 STRUCTURAL CONFLICT ( $F_{10}$ ) on page 166) and operating conflict (see Section 6.3.3 OPERATING CONFLICT ( $F_{11}$ ) on page 168). Molnar and Rogers anticipated that the six exogenous or manifest variables included within their model would have positive and negative influences upon interdependence and on both types of inter-organizational conflict. Their structural equation model is illustrated in Figure 5.5 on page 159.

While reflecting upon the outcomes of their work, Molnar and Rogers identified a number of additional factors that should be explored in future work. They indicated

that attention should be given to domain and administrative variables which place an organization in a co-ordinated space of responsibility and authority, as well as *intra-organizational* variables which influence participation and development of inter-organizational relationships. Because of their ability to directly influence inter-organizational relationships, Molnar and Rogers also felt that other dimensions which acknowledge reputation, organizational resources and boundary personnel differences may need to be included within a revised, contemporary model.

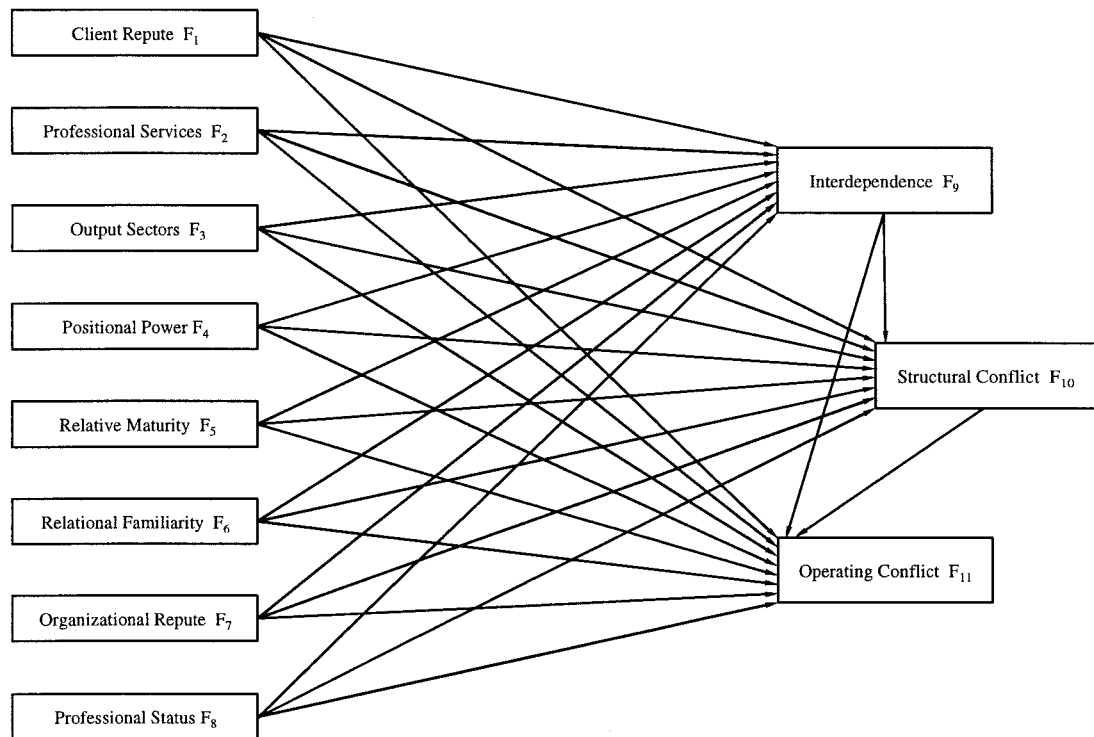
As this study is intending to explore the factors that influence the occurrence of social conflict within construction-related inter-organizational collectivities in the UK, it is important that the contextual similarities and differences between this and Molnar and Rogers' study are carefully considered when selecting latent factors for inclusion within a new structural equation model. Any model that is to be explored within the context of the UK construction industry must be carefully constructed and include factors that are pertinent to the field of investigation, respect the issues associated with accessing data and gaining the participants' consent and trust, and recognize the characteristics of primary data and data gathering instruments.

The following sections of this chapter describe the eleven constructs or latent factors that have been derived from the literature and evaluated as pertinent to the context of the intended study. These constructs are context-specific, inter-related and determine the theoretical domain of the exploratory study. The surmised correlations between the constructs are illustrated in Figure 6.1 on page 164, which represents the revised or contemporary structural equation model explored during this Ph.D. investigation.

### 6.3 OPERATIONALIZATION OF CONSTRUCTS

This exploratory study employs eleven *constructs* or *factors* to analyse social conflict in construction-related inter-organizational collectivities. These constructs or factors are comprised of eight *exogenous* or *independent* variables and three *endogenous* or *dependent* variables. Independent variables (IVs) are the unique characteristics that the individual construction-related organizations bring into the inter-organizational collectivities. They are usually considered either *predictor* or *causal* variables

**Figure 6.1 Hypothesized Structural Equation Model of Inter-organizational Conflict in the UK Construction Industry**



because they predict or cause the dependent variables (DVs): the *response* or *outcome* variables. In the first instance, the operationalization of the three endogenous or dependent variables will be considered. This will then be followed by a similar discussion for the eight exogenous or independent variables.

### 6.3.1 INTERDEPENDENCE ( $F_9$ )

Molnar and Rogers (1979) have identified interdependence as the extent to which two or more organizations are provisionally or permanently conjoined as a consequence of mutual exchanges or commitments on a continuing basis. Their definition is founded upon the theories of two distinct groups of researchers. Firstly, those authors, e.g. Aiken and Hage (1968), Marrett (1971) and Rogers (1974), who have identified the number of joint programs and the frequency or intensity of exchange as a central component of inter-organizational relationships. Secondly, those authors, e.g. Miller (1958) and Barth (1963), who have documented the high probability of social conflict arising between organizations in establishing interdependence.

Molnar and Rogers perceive interdependence as a potential source of conflict during inter-organizational relationships because it generally promotes awareness of latent antagonisms or social conflicts – cf. this proposition with Coser's (1968) theories of social conflict and Rahim's (1992a; 1992b) theories of organizational conflict that were discussed in Chapter 4. They have suggested that moderate to high levels of interdependence in an inter-organizational relationship can actually encourage organizations to confront discrepancies in function and purpose that would otherwise have been avoided had mutual collaboration not taken place. Furthermore, they have remarked that decreased interdependence in an inter-organizational relationship may alleviate some latent antagonisms or social conflicts by reducing the overall need for the organizations to act in perfect accord. Aldrich (1976), however, has pointed out that interdependence generally implies the requirement to surrender the individual control of essential organizational resources. This is because the expectation is that interdependence will generate social conflicts and inconsistencies which must therefore be confronted and adequately resolved in order for the inter-organizational relationship to continue on a stable basis:

According to the final outcomes of Molnar and Rogers' investigation, the net relationship between interdependence and inter-organizational conflict is a positive one. This is attributed to the belief that interdependent relationships are generally more likely to expose latent discrepancies in purpose and function, which may therefore lead to *structural conflicts* over the basic premises of the linkage or the inter-organizational association (Molnar and Rogers, 1979).

During this study, INTERDEPENDENCE ( $F_9$ ) was measured by asking respondents to indicate how frequently their organization had provided information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the other organizations located within their inter-organizational collectivity. An ordinal ranking scale that employed seven integers in uniform descending order, i.e. from seven to one, was used to measure each respondent's intuitive perception of their organization's relative degree of mutual interdependence or intensity of exchange with each of the other organizations in their collectivity, e.g. from *several times daily* to *less than once monthly*. The numbers assigned to this attitude measurement scale, *Likert Scale B*, which is



illustrated in Table 10.2 in Appendix A: Attitude Measurement Scales on page 307, do not indicate that the intervals between the scales are linear and equal, nor do they indicate absolute intensity – they are merely numerical labels used to reflect the respondent's attitude towards a particular statement. Likert Scale B, which is therefore a relatively overt measuring instrument, was designed to enable a high score to represent a positive or a favourable attitude statement. The responses obtained from the boundary role representatives sited within an inter-organizational dyad, e.g. boundary role representatives A and B, were then summed in order to form an aggregate measure of interdependence for their organizations' resource-dependent relationship, i.e. organization A  $\leftrightarrow$  organization B. The INTERDEPENDENCE factor ( $F_9$ ) has a range of two to fourteen; a high score being indicative of strong interdependence between a pair of construction-related organizations operating in the north-eastern region of England.

### 6.3.2 STRUCTURAL CONFLICT ( $F_{10}$ )

Horowitz (1963) believes that structural conflict emanates from attempts to establish or define a relationship and frequently reflects a disagreement over the legitimate prerogatives and fundamental structure of each organization's responsibilities. This contrasts with Walton's (1972) understanding of structural conflict where he argues that it typically occurs over the cultural identities or public images maintained by interacting organizations. In an attempt to resolve this disparity, Molnar and Rogers (1979) have explained that structural conflict generally occurs over the basic identities and responsibilities that define an inter-organizational relationship and reflects an inability to establish or maintain the basic rules or principles that govern the relationship. They have suggested that structural conflict, in the vast majority of cases, is the result of external constraints that influence the purposes and behaviour of each organization in its approach to another. For example, as Barth (1963) has indicated, organizations may be encumbered by responsibilities that at first sight appear to be at cross-purposes with the activities of other organizations.

Among construction-related organizations the quality or standard of expected workmanship versus construction cost often represents a conflicting theme in inter-organizational relationships, as does the quality or standard of expected workmanship versus project duration (Carpenter, 1981; Ministry of Public Buildings and Works, 1964; Ministry of Works, 1962). In such cases, the objectionable practices of one organization may be mandated by its contractual arrangement, thus creating social conflict in an otherwise co-operative relationship. Often the boundary role representatives of the organizations that together form the inter-organizational collectivity may be able to recognize such difficulties, but may be powerless, under the terms and conditions of their contracts, to reconcile the structural sources of conflict within the collectivity.

Molnar and Rogers have also suggested that structural conflict is a significant source of *operating conflict*. Their theory has evolved from the work of Goldman (1966), who introduced the notion that substantive conflict between organizations is likely to increase in frequency and intensity, and eventually becomes directly related to the larger concern of their social relationship. Molnar and Rogers have stated that: “chronic or protracted disagreements may be generated by contrasting organizational structures and functions that boundary personnel are unable to reconcile on a sustained basis” (Molnar and Rogers, 1979: 408). Assael (1969) has clarified this point by declaring that conflict may serve to inform boundary role representatives to the requirement for additional elaboration regarding the terms and distribution of effort in an inter-organizational relationship. However, according to Pondy (1969) and White (1974), certain inter-organizational conflicts may be deliberately created in order to provoke the reallocation of essential resources and administrative authority, thus reflecting an underlying requirement for the realignment of the inter-organizational interface.

STRUCTURAL CONFLICT ( $F_{10}$ ) was measured during this study by asking respondents to rate the extent to which conflicting responsibilities or priorities characterized their social exchange relationship with each of the other organizations located within their inter-organizational collectivity. An ordinal ranking scale that employed five integers in uniform descending order, i.e. from five to one, was used to measure each respondent’s intuitive perception of their organization’s experience

of structural conflict, e.g. from *very often* to *never*. The numbers assigned to this attitude measurement scale, *Likert Scale C*, are illustrated in Table 10.3 in Appendix A: Attitude Measurement Scales on page 308. In a similar manner to Likert Scale B, the numbers in Likert Scale C do not indicate that the intervals between the scales are linear and equal, nor do they indicate absolute intensity – once again they are merely numerical labels that are used to reflect the respondent's attitude towards a particular statement. Accordingly, Likert Scale C is also a relatively overt measuring instrument which allows a high score to represent a positive or a favourable attitude statement. The response from the boundary role representative of organization A was therefore added to the report of structural conflict from the boundary role representative of organization B in order to form an aggregate measure of structural conflict within their organizations' social linkage, i.e. organization A  $\leftrightarrow$  organization B. The STRUCTURAL CONFLICT factor ( $F_{10}$ ) has a range of two to ten; a high score being indicative of a high level of structural conflict during a dyadic inter-organizational relationship.

### 6.3.3 OPERATING CONFLICT ( $F_{11}$ )

It is apparent to Walton (1972) that operating conflict normally occurs when one organization disputes the position of another over a fundamental yet mutual concern, but makes little or no attempt to influence or change the other's jurisdiction over the situation. Molnar and Rogers (1979) have explained that within the context of a pre-established set or prescribed pattern of inter-organizational relationships, operating conflict predominantly occurs between organizations over the co-ordination of operating procedures and activities. Operating conflict is therefore frequently encountered during the process of discovering how fundamental interests and objectives are complementary or coincidental to an inter-organizational relationship (Walton, 1972).

Molnar and Rogers (1979) have contended that operating conflict refers to the level of disagreements or disputes that typically frequents or characterizes an inter-organizational relationship. According to Goldman (1966), it generally occurs in the process of problem solving and represents disagreements over task expectations or

role performances during inter-organizational relationships. This is simply because interacting organizations tend not to possess identical instrumental purposes for their mutual relationship, and interest and commitment towards a relationship are very rarely balanced. Furthermore, this is compounded by the frequent redefinition and articulation of organizational roles and responsibilities during the process of continuing activities. For instance, Molnar and Rogers have stated that:

Such negotiations are likely to surface latent inequities and incongruities, conflicts that are addressed and resolved in a context of a shared recognition of the legitimacy and mutual benefit of the underlying relationship.

(Molnar and Rogers, 1979: 408)

In providing a reasonable argument for this particular point, Molnar and Rogers have promoted the idea that operating conflicts typically reflect the continual process of mutual adjustment between interacting organizations within the inter-organizational collectivity. They maintain that fundamental differences in prerogatives or perceived legitimacy between interacting organizations are bound to propagate more frequent disagreements and disputes over less significant issues that they eventually take on symbolic importance. Moreover, Dutton and Walton (1966) have explained that the greater the extent of mutual task dependence between interacting organizations, the greater the occasion for operating conflict in the process of mutual adjustment and co-ordination during the inter-organizational relationship.

OPERATING CONFLICT ( $F_{11}$ ) was operationalized during this study by asking respondents to rate the extent to which disagreements or disputes characterized their information and resource exchange relationship with each of the other organizations located within their inter-organizational collectivity. In a similar manner to the operationalization of STRUCTURAL CONFLICT ( $F_{10}$ ), an ordinal ranking scale that employed five integers in uniform descending order, i.e. from five to one, was used to measure each respondent's intuitive perception of their organization's experience of operating conflict, e.g. from *very often* to *never*. The numbers assigned to this attitude measurement scale, *Likert Scale C*, are illustrated in Table 10.3 in Appendix A: Attitude Measurement Scales on page 308. Organization A's report of operating

conflict with organization B was summed with organization B's report of operating conflict with organization A in order to form an aggregate measure of operating conflict during their inter-organizational relationship, i.e. organization A ↔ organization B. The OPERATING CONFLICT factor ( $F_{11}$ ) has a range of two to ten; a high score being indicative of a high incidence of operating conflict at the interface between two construction-related organizations.

\* \* \*

The *exogenous* or *independent* variables considered during this study, which are illustrated Figure 6.1 on page 164 and which measure comparative organizational properties, represent eight organizational characteristics that the literature suggests are important influences on the nature of the relations between groups. These variables include the respectability of the client served, the professional services rendered, the sectors of involvement in the inter-organizational field, the level of positional power advantage, the relative maturity of the parties, the incidence of prior acquaintanceship among the parties, the extent of respectability between the parties, and the professional skill and competence of the boundary role representatives. These unique characteristics are viewed as contextual conditions determining the level of interdependence that develops between organizations and the amount of structural and operating conflict in a relationship.

The eight exogenous variables represent unique features that profile the niche of an organization in the inter-organizational field, as well as its potential for linkage or association with other organizations located within that field. It is conceded that each variable exploits an important aspect of the setting or context in which an inter-organizational relationship is established and maintained. Variables measuring similarity of organizational domain and administrative context provide content and direction to the inter-organizational relationships, and, as Molnar and Rogers (1979) have suggested, these factors often help to determine the underlying purposes and motivations that typically unite organizations and influence the nature of their social interaction.

Levine and White (1961) have defined organizational domain as a subset of the task environment, e.g. the construction project organization, and have explained that it refers to the range of activities claimed by the organization for itself as its particular arena of operation. They make the point that domain often consists of the specific goals the organization wishes to pursue and the discrete functions the organization undertakes in order to implement its goals. Meyer (1975) has suggested that domain is often measured in terms of the services rendered, the population served and the problem area addressed by an organization. In this particular way, domain, according to Warren *et al.* (1974), actually defines the relative position or market share of an organization in relation to other organizations located within the inter-organizational field, and also the collection of distinct environmental relationships that are critical to that particular position. The juxtaposition of organizational domains is argued by Molnar and Rogers to be a major determinant of the nature and type of social relationships that develop between organizations located within the inter-organizational field.

During Chapter 5 Warren's (1967) four-fold typology of decision-making contexts was introduced. This typology is based on the observation that exchange between two or more organizations is affected, in part at least, by the nature of the organizational pattern or inter-organizational network within which they find themselves. The four categories of inclusive contexts identified by Warren are *unitary*, *federative*, *coalitional* and *social choice* (see Table 5.1 on page 126 for further information regarding the dimensions of Warren's typology). Molnar and Rogers in their study of dyadic relationships in networks of natural resource agencies in five non-metropolitan Midwest counties of the USA contrast the more inclusive unitary and federative contexts with the less inclusive coalitional and social choice contexts. According to Warren, a unitary decision-making context is one in which a higher administrative authority governs interaction between organizations, whereas a federative decision-making context is one in which individual organizations have their own specific goals but where there is some formal administrative organization for the accomplishment of inclusive goals. Regrettably, it is clear from these definitions that Warren's contexts are unable to accurately represent the nature of the administrative authority or power structures that usually govern the interaction between organizations in the UK construction industry.

In an attempt to resolve this particular problem, Gardiner and Simmons' (1992b; 1992a) *organization-system* model of construction project organizations was employed during this investigation (see Section 3.8 Construction Project Organization Systems on page 75 for further information regarding Gardiner and Simmons' *organization-system model*). This is because their model was formulated following a number of studies into conflict and change within the UK construction industry, and is predominantly focused upon the patterns of administrative authority or *positional power* and the networks of inter-organizational relationships that typically exist between component organizations during the realization of building projects. Four broad categories of component organizations were identified as a consequence of their work, viz. the *client system* (CS), the *project organization* (PO), the *client project organization* (CPO) and the *project management system* (PM). According to Gardiner and Simmons, the characteristics and culture of a specific project organization are important in determining the relative frequency of latent antagonisms or social conflicts, the ability of an organization to resolve such conflicts and the likelihood of achieving a functional or dysfunctional outcome to a project-specific problem (see Section 4.9 Characteristics of Organizational Conflict on page 108 for further information regarding *functional* and *dysfunctional* conflict).

The structural equation model (SEM) that is explored during this study incorporates a set of forces that govern exchanges and competitive relationships between networks of private-sector construction-related organizations in the north-eastern region of England. In the context of this research project, organizational domains are analogous to private-sector shares of the marketplace, and construction-related organizations frequently compete for responsibility or prerogatives with other private-sector construction-related organizations that are approaching similar project-specific problems with different sets of motivations and assumptions. This contrasts significantly with public-sector construction-related organizations, such as central government and local authority construction and development agencies, which tend to operate in a normative and administrative context that typically encourages co-operation and integration among similar public-sector agencies. It is therefore expected that a new private-sector construction-related organization may expect to encounter market-entry and acceptance problems with collectivities of previously acquainted or familiar private-sector construction-related organizations as it attempts

to establish its role and responsibilities within the inter-organizational field, i.e. the construction industry in the north-eastern region of England.

The eight exogenous or independent variables considered during this exploratory study will now be defined.

#### **6.3.4 CLIENT REPUTE (F<sub>1</sub>)**

During their study of inter-organizational conflict between pairs of public-sector agencies in the field of natural resource management in the Midwest counties of the USA, Molnar and Rogers (1979) investigated the degree to which organizations serving common constituencies or client groups are more likely to experience latent antagonisms or social conflicts. Their decision to explore the *shared clients* variable was based on two strong arguments. The first was a belief that organizations with overlapping client constituencies are generally more likely to become interdependent through their inter-related involvement with such clients (Molnar and Rogers, 1979). The second was the conviction that client groups eventually expect consistency and continuity in the services they receive from several organizations, and, as a result, often seek to influence activities that directly affect them (Aiken *et al.*, 1975). Molnar and Rogers therefore expected similar client constituencies to facilitate interdependence between organizations operating within the same inter-organizational field.

Molnar and Rogers also explained that organizations with differing client groups are generally more likely to serve different interests that are not interdependent and may therefore be less likely to experience social conflicts. They expanded this theory by suggesting that organizations which share a moderate number of client groups can be expected to experience additional social conflicts from the groups that they do not share. It was therefore apparent to them that social conflicts between opposing client constituencies may be imposed on an inter-organizational relationship when both organizations claim to serve the disputing groups.



Molnar and Rogers derived the *shared clients* variable from a series of questions that asked administrators (or boundary role representatives) to indicate whether their natural resource management agency served any of a series of client groups, which included farmers, private industry, recreational users, non-farm landowners, park users, homeowners and local agencies. The client groupings or classification framework used by Molnar and Rogers is clearly unsuitable for this particular study which is aiming to explore social conflict in construction-related inter-organizational collectivities in the north-eastern region of England. A pertinent method for measuring the effects that client-related attributes can have upon the social context of the construction process is therefore needed if this study is to proceed.

Section 3.7 Classification of Client Organization Systems on page 70 gave account of how construction industry clients have historically been categorized into two broad groups according to their source of project funding, viz. public- or private-sector funding. It was explained that this grouping technique could be defined as the bifurcated client classification framework. Later in the section it was argued that because of the increasingly complex and varied nature of clients, together with the dynamic nature of the procurement methodologies that are employed in the UK construction industry, the bifurcated framework has become redundant with respect to its practical application within a research setting.

In an attempt to overcome the limitations of the bifurcated classification system, it was suggested that Masterman and Gameson's (1994) approach was a much more sophisticated procedure. It was explained that their approach was based on work originally conducted by Higgin and Jessop (1965) and Nahapiet and Nahapiet (1985) and primarily considers the level of the client's prior construction-related experience and whether the client is a primary or a secondary constructor. Although Masterman and Gameson's approach is useful in providing four groupings as opposed to two, it is contested that it is once again limited in its ability to encompass the complex spectrum of client constituencies that are served by construction-related organizations in the UK. A different perspective is therefore needed for this study which should not restrict the classification of clients according to their source of project funding, their level of prior construction-related experience, or whether they are primary or secondary constructors. This fresh or contemporary approach should,

ideally, be all-embracing or catholic in its viewpoint regarding the client-related attributes that typically influence the social context of the construction process.

In Section 3.4 Client Organizational Attributes on page 51, Kometa *et al.*'s (1994) study, which described the relative importance of the attributes of construction clients and their influence on project consultants' performance, was summarized. It was acknowledged that Kometa and his colleagues were comprehensive in their examination of client organizational attributes as they identified no fewer than ten main attributes and forty-seven sub-attributes. Despite this strength it was argued that they had presented a rather restricted view of the entire picture that is potentially available regarding the impact of client organizational attributes and other factors upon the construction process itself. This is because they seem to have overlooked how client-related attributes could potentially influence the social relationships that exist between construction industry clients and construction-related organizations. As a result, they waived the opportunity to investigate the correlation between client-related attributes and the manifestation of social conflict.

Putting aside the shortcomings of their study for the time being, Kometa and his associates did make a significant step forward with respect to establishing a pertinent method for measuring the effects that client-related organizational attributes can have upon the social context of the construction process. For instance, subsequent to an extensive structured survey of design and construction cost consultants in the UK, they identified the following most important client-related organizational attributes: the financial stability of the client (i.e. creditworthiness, current liabilities and current assets); the feasibility of the project (i.e. project priorities, feasibility study and site conditions); the past performance of the client (i.e. cost overrun, quality achieved and time overrun); the project characteristics (i.e. time for completion, type of project, cost of project and objectives/sub-objectives); and the client's duties (i.e. project definition and formulation, planning and design, and project finance).

Given the aim and objectives of the present study (see Section 1.4 Research Aim and Objectives on page 6 for more information regarding the *aim and objectives* of this study), and the limitations that they inevitably introduce with respect to the data collection procedure, it is clear that Kometa *et al.*'s list of significant client-related

attributes is far too detailed and extensive. Furthermore, it is accepted that most boundary role representatives would probably be unable to provide accurate responses to interview questions based on such a comprehensive list. It is important, however, that the concepts presented immediately above by Molnar and Rogers and Kometa and his colleagues are not completely ignored during this study. Ergo, in an attempt to recognize their theories at an appropriate level, it is considered acceptable to focus the attention of the boundary role representatives purely upon the *respectability* of their clients. Furthermore, this approach also recognizes one of the recommendations made by Molnar and Rogers following their study of conflict between pairs of public-sector agencies in the field of natural resource management in the USA that was outlined in Section 5.12 Comparative Model of Inter-organizational Conflict on page 156 of this thesis.

Client respectability refers to the degree to which client organizations possess the necessary qualities or attributes to engender project-related confidence and success among their professional consultants and contractors during the realization of building projects. The CLIENT REPUTE ( $F_1$ ) variable disregards the anomalies regarding the classification of clients, but recognizes the importance of the attributes of client organizations which may influence construction-related organizations' performance. Respectable clients are therefore expected to facilitate amicable social relationships between the organizations that are jointly providing them with construction-related services. This is because it is hypothesized that a positive correlation exists between the nature of the social relationships that exist between construction-related organizations and the respectability of client organizations.

CLIENT REPUTE ( $F_1$ ) was measured during this study by asking respondents to rate the extent to which they found the client to be a respectable organization to serve during the realization of the building project. An ordinal ranking scale that employed five integers in uniform descending order, i.e. from five to one, was used to measure each respondent's intuitive perception of their client organization's degree of repute or respectability, e.g. from *very reputable* to *not at all reputable*. The numbers assigned to this attitude measurement scale, *Likert Scale A*, are illustrated in Table 10.1 in Appendix A: Attitude Measurement Scales on page 307. In a similar manner to those numbers assigned to Likert Scales B and C, the numbers

assigned to Likert Scale A do not indicate that the intervals between the scales are equal, nor do they indicate absolute intensity – once again, they are merely numerical labels used to reflect the respondent's attitude towards a particular statement. Ergo, Likert Scale A was designed to enable a high score to represent a positive or a favourable attitude statement. Organization A's report of client respectability was therefore added to organization B's report in order to form an aggregate measure of client respectability during their dyadic relationship, i.e. organization A ↔ organization B. The CLIENT REPUTE ( $F_1$ ) variable has a range of two to ten; a high score indicating a balanced level of good client respectability between a pair of project-related organizations.

### **6.3.5 PROFESSIONAL SERVICES ( $F_2$ )**

Professional services refers to the degree to which organizations offer common or undistinguishable construction-related outputs to the task environment. Molnar and Rogers (1979) have explained that organizations offering similar services are generally more likely to be aware of one another and to have secured sufficient grounds for social interaction during the course of their normal activities. Their proposition has evolved from the work of Reid (1969), who introduced the belief that organizations offering similar professional services are often more likely to possess comparable resource requirements, and are therefore highly likely to utilize the resources that other organizations within their inter-organizational field have available to them. In collectivities where norms of administrative co-operation and co-ordination are dominant, common resource requirements and supply capabilities actually increases the potential for exchange and facilitates the developmental processes of interdependence (Molnar and Rogers, 1979).

Molnar and Rogers also believe that shared services may be a potential source of latent antagonisms or social conflicts in inter-organizational relationships. They warn that organizations providing similar outputs to the task environment may eventually regard each other as threatening or as deliberately restricting their individual efforts to offer a comprehensive response to a specific problem. Furthermore, they have emphasized that some degree of interdependence may well

be inevitable for organizations with comparable domains and that this may eventually generate structural as well as operating conflict. Consequently, Molnar and Rogers have stated that:

... interdependence is likely to bring structural conflicts to the fore and to increase the likelihood of operating conflicts over matters fixed in principle but not in detail.

(Molnar and Rogers, 1979: 410)

Evan (1965) and White (1974), however, adopt a different perspective. They believe that the similarity of outputs can actually create a potential source of avoidance in inter-organizational relationships. Hence, the overall tendency towards avoidance may increase the probability of social conflicts arising in situations where shared services make inter-organizational contact completely unavoidable (Molnar and Rogers, 1979).

Counting a series of dummy-coded manifest variables which represented whether a pair of organizations, e.g. an inter-organizational dyad, did or did not share an individual construction-related service derived the measure of PROFESSIONAL SERVICES ( $F_2$ ) during this study. Respondents were asked to indicate from a preconceived list of categories whether or not their organization offered any of a series of professional services within the field of the construction industry in the north-eastern region of England. The list of professional services that was presented to the respondents, which is illustrated in Table 11.1 in Appendix B: Construction-related Professional Services on page 309, was derived from documents that were obtained from the organizations before the interviews were conducted and was considered to be exhaustive of the range of possible construction-related services offered by the organizations that were participating in the study. The services were grouped into three focused categories or observable indicators entitled *design services* ( $V_2$ ), *construction services* ( $V_3$ ) and *property services* ( $V_4$ ). These observable indicators, i.e.  $V_2$ ,  $V_3$  and  $V_4$ , were derived from twelve dummy-coded manifest variables representing the spectrum of professional services that the participating construction-related organizations may provide to their clients (four dummy-coded manifest variables were assigned to each observable indicator). As

the category titles suggest, the design services observable indicator ( $V_2$ ) was derived from four dummy-coded manifest variables which represented the following professional services: building design ( $V_{2A}$ ), electrical engineering design ( $V_{2B}$ ), mechanical engineering design ( $V_{2C}$ ) and structural engineering design ( $V_{2D}$ ). The construction services observable indicator ( $V_3$ ) was derived from four dummy-coded manifest variables which represented the following professional services: building construction ( $V_{3A}$ ), building and site control ( $V_{3B}$ ), health and safety ( $V_{3C}$ ) and quantity surveying ( $V_{3D}$ ). And the property services observable indicator ( $V_4$ ) was derived from four dummy-coded manifest variables which represented the following professional services: building surveying ( $V_{4A}$ ), financial management ( $V_{4B}$ ), project evaluation and development ( $V_{4C}$ ) and project management ( $V_{4D}$ ).

If both of the organizations located within an inter-organizational dyad, i.e. organization A  $\leftrightarrow$  organization B, indicated involvement in a particular activity, a score of one was assigned to the appropriate dummy-coded manifest variable for their dyad. If only one or neither organization indicated involvement, a score of zero was assigned. The measure for each observable indicator, i.e.  $V_2$ ,  $V_3$ , and  $V_4$ , for the inter-organizational dyad in question was then determined by summing the scores of the relevant dummy-coded manifest variables. The PROFESSIONAL SERVICES factor ( $F_2$ ), which was computed by adding together the scores of the three observable indicators, i.e.  $V_2$ ,  $V_3$ , and  $V_4$ , for the pair of organizations sited within the observed dyad, ranges from zero to twelve; a high score being indicative of a high incidence of shared construction-related professional services between the two organizations functioning within an inter-organizational dyad.

### 6.3.6 OUTPUT SECTORS ( $F_3$ )

Molnar and Rogers (1979) have defined an output sector as a substantive problem area or task environment to which an organization chooses to provide outputs and from which it strives to obtain clients. Some organizations, for example, may be predominantly concerned with providing construction-related services that facilitate the design and construction of industrial facilities, while others may be concerned with providing services that facilitate the realization of administrative, commercial

and protective facilities. An output sector is therefore a particular aspect of the task environment to which a construction-related professional service is directed.

Molnar and Rogers have indicated that organizations operating in proximate output sectors are generally more likely to become interdependent in the medium- to long-term. This is because interdependence is the most cost-effective approach to mutual existence within the inter-organizational field. From Gouldner's (1959) perspective, the long-term advantages of a division of labour and mutual facilitation in the face of common problems frequently surpass the limited benefits of complex autonomy and mutual avoidance. Interdependence, however, can also be considered as the tactical deployment of focused control measures over salient aspects of the organizational environment and, in particular, organizations that choose to operate in proximate output sectors of the inter-organizational field (Molnar and Rogers, 1979).

Organizations that choose to operate in common output sectors are therefore more likely to experience latent antagonisms or social conflicts over the fundamental bases for differentiating their individual activities within the policy space of the inter-organizational field (Randall, 1973). As Molnar and Rogers have suggested, this is because inconsistent administrative requirements or discontinuities may result in chronic conflicts over the structure of organizational roles and responsibilities. Conflicts of this nature may therefore centre on the unwillingness of one organization to fulfil such administrative requirements or to undertake such responsibilities. They may also be focused on disputes or disagreements over prerogative or authority on some other important issue. Organizations that provide outputs in several industrial sectors may therefore experience discontinuities in their relationships with each other, which may subsequently increase the occurrence of disputes and disagreements arising during the course of their normal activities (Molnar and Rogers, 1979).

The OUTPUT SECTORS measure ( $F_3$ ) was derived from dummy-coded manifest variables reflecting shared involvement in a series of construction-related problem areas or types of activities. Respondents were asked if their organization was involved in any of a finite series of output or industrial sectors within the field of the construction industry in the north-eastern region of England. The list of output

sectors was derived from the CI/SfB<sup>1</sup> classification of building types that is illustrated in Table 12.1 to Table 12.10 in Appendix C: CI/SfB Classification of Building Types, which starts on page 310, and was considered to be exhaustive of the range of potential activity areas for the organizations that were participating in the study.

As can be seen in Table 13.1 Output Sectors and Corresponding Variables in Appendix D: Construction-related Output Sectors on page 317, the output sectors were grouped into the two most relevant genotypic factors identified by Katz and Kahn (1978) in their classification of organizations, viz. the *productive* or *economic sectors* ( $V_5$ ), which is concerned with the creation of wealth, the manufacture of goods and the provision of services for the public, and the *maintenance sectors* ( $V_6$ ), which is concerned with the socialization of people to fulfil roles in other organizations and society. Hence, the productive sectors observable indicator ( $V_5$ ) was derived from five dummy-coded manifest variables representing the following CI/SfB-related output sectors: utilities and civil engineering facilities ( $V_{5A}$ ); industrial facilities ( $v_{5B}$ ); administrative, commercial and protective facilities ( $V_{5C}$ ); health and welfare facilities ( $V_{5D}$ ); and common facilities ( $V_{5E}$ ). Whereas the maintenance sectors observable indicator ( $V_6$ ) was derived from four dummy-coded manifest variables representing the following CI/SfB-related output sectors: recreational facilities ( $V_{6A}$ ); religious facilities ( $V_{6B}$ ); educational, scientific and information facilities ( $V_{6C}$ ); and residential facilities ( $V_{6D}$ ). If both organizations indicated involvement in a particular output sector, a score of one was assigned to the relevant dummy-coded manifest variable for their particular dyad, i.e. organization A  $\leftrightarrow$  organization B. If one or neither organization indicated involvement, a score of zero was assigned. The measure for each observable indicator, i.e.  $V_5$  and  $V_6$ , was then determined by adding together the scores of the relevant dummy-coded manifest variables for the CI/SfB-related output sectors for the measured inter-organizational dyad. The OUTPUT SECTORS factor ( $F_3$ ), which was derived by adding together the scores of the observable indicators, i.e.  $V_5$  and  $V_6$ , ranges from zero to nine; a

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<sup>1</sup> CI/SfB stands for Construction Index/Samarbetskommitten for Byggnadsfrågor, a Scandinavian system of classification originally set up in 1959, and specially designed for the construction sector. This system is now generally used worldwide for any technical and trade literature in the broad construction area.



high score being indicative of a high incidence of common output sectors between two construction-related organizations united at an inter-organizational interface in the north-eastern region of England.

#### 6.3.7 POSITIONAL POWER (F<sub>4</sub>)

Bonoma (1976) has explained that in their long and interesting history of service, the concepts of power and conflict have generated much scholarly contention, and even a little harmony, within the social disciplines. Along with their ubiquitous companion construct of social influence, Bonoma has argued that these variables have been connected in many different ways in order to create a theoretical net which provides an adequate explanation for such diverse phenomena as attitude change, inter-personal and inter-organizational relations, and societal processes. Tedeschi *et al.* (1973) have suggested that these variables provide a stable foundation upon which a unified theory of social interaction may be developed. That is to say, a theory whose basic constructs remain unmodified from the basic two-person interaction, i.e. inter-*personal* exchange, to the more complex interaction between two organizations, i.e. inter-*organizational* exchange.

According to Raven and Kruglanski (1970), the intensification and resolution of social conflict between organizations is determined not only by the amount of power at the disposal of the antagonists but also the qualitative nature of power which is brought to bear on the conflictful situation. It follows that the amount and type of power utilized will vary with the intensity of the social conflict and with the inter-personal attributes of the organizations' boundary role representatives. Social influence is therefore defined as a change in one organization, which has its origins in another organization, and power as the ability of one organization to potentially influence another (Raven and Kruglanski, 1970).

Cook (1977) has explained that the more power an organization possesses, the more influence it has to determine the nature of the inter-organizational exchange between itself and other organizations located within the same collectivity. In other words, organizational power is the ability to determine the form of the interaction and the

ratio of the exchange between two or more organizations. Organizations with a power advantage in an exchange relation will therefore exploit the situation to alter the exchange ratio in order to make it more favourable to them. In equally balanced exchange relations the exchange ratio is relatively stable, since there is no power differential between the organizations involved in the exchange.

Inter-organizational network analyses have repeatedly demonstrated a correlation between *centrality* and power (see Boje and Whetten, 1981; Knoke, 1983; Miller, 1980; Perrucci and Lewis, 1989). The centrality of a position in a network refers to the location of an organization in relation to all of the other organizations that are situated within the collectivity. Centrality as a structural feature of an exchange network is frequently associated with the power of an organization, or what Lehman (1975) refers to as *systemic power*. Both Galaskiewicz (1979) and Laumann and Pappi (1976) found that the more central an organization is within a network, the greater its reputation for influence during collective decision-making. Hence, as Cook has explained, an important determinant of the power of an organization is its *location* within the network of inter-organizational relations. This is the essence of what has been referred to in community power studies as a *positional* or *structural* power advantage (see Benson, 1975; Blau, 1964; Cook, 1977; Emerson, 1962).

Clearly, the way in which network centrality is measured can directly influence the substantive conclusions of an investigation into positional or structural power advantage within inter-organizational collectivities. Moving beyond measures based on the raw number of ties, Bonacich (1972) adapted an eigenvector measure that took into account the centrality of those with whom a social agency was tied, and Freeman (1979) presented a measure based on the *betweenness* of the social agencies. Although several studies have found positive associations between the constructs of centrality and power (see Bonacich and Roy, 1986; Friedkin, 1991; Mizruchi *et al.*, 1986; Stephenson and Zelen, 1989; Tam, 1989), Mizruchi and Galaskiewicz (1993) have pointed out that centrality is actually a poor predictor of positional or structural power advantage if the inter-organizational network is fragmented.

In Section 2.6 Fragmentation in the Construction Industry on page 32 of this thesis, it was argued that construction is a highly fragmented industry that is distinguished from other manufacturing-based industries in the UK by its propensity to support social conflict during the design and production sub-processes. Furthermore, in Section 4.6 Unified Theorem of Social Conflict on page 94, it was contended that social conflict is both a likely cause and a subsequent effect of fragmentation in the construction industry. It can therefore be determined from these two arguments that centrality would be an inappropriate predictor of the positional or structural power advantage that is contained within the networks of construction-related organizations that are to be investigated during this study.

Returning once again to Molnar and Rogers' (1979) classic study, it can be seen that they attempted to predict positional or structural power advantage in the networks of natural resource agencies by measuring two independent power-related variables, viz. the *unitary decision-making context* and the *federative decision-making context*. The rationale for their approach was based on Warren's (1967) observation that exchange between two organizations is affected, in part at least, by the nature of the social network in which they find themselves. However, it was explained earlier in this chapter that Warren's typology of decision-making contexts is unsuitable for this study, as it is unable to accurately reflect the nature of the power structures that influence social interaction between construction-related organizations in the UK.

Clark (1965) has indicated that inter-organizational interaction is affected by the bureaucratic pattern or power structures of the exchange network. Without prior knowledge of Clark's original thinking, Gardiner and Simmons (1992b; 1992a) developed an *organization-system* model that focuses on the exchange relationships between *component organizations* during construction projects. As explained in Section 3.8 Construction Project Organization Systems on page 75, Gardiner and Simmons' model is based on a higher organizational level than the more traditional models of construction project organizations. These models tend to illustrate the structural relationships between component organizations by conceptualizing time and contractual obligations in completely different and often discordant ways. In an attempt to address these restrictions during their study of the relationship between conflict, change and project management strategy, Gardiner and Simmons produced

a flexible yet robust model that is capable of measuring the potential for structural or positional power advantage between component organizations during construction projects. Ergo, as the potential for positional or structural power advantage is ever-present in construction projects, an examination of the power structures that unite component organizations together – using Gardiner and Simmons' *organization-system* model – is absolutely essential if social conflict in construction-related inter-organizational collectivities is to be accurately investigated.

The POSITIONAL POWER advantage factor (F<sub>4</sub>) was operationalized during this study by first of all asking respondents to explain, in simplified diagrammatic form, the inter-organizational structure of the procurement system that was utilized during the realization of the building project. The various illustrations that were produced for each building project were then compared and evaluated in order to develop a standardized diagrammatic model of the *contractual*, *functional* and *alternative* relationships that existed between the construction-related organizations. This approach was based on Masterman's (1992) methodology for simplifying and illustrating the inter-organizational relationships that typically exist during conventional procurement strategies. Examples of the resultant diagrams that illustrate the different types of linkages that existed between the construction-related organizations investigated during this study can be found in Appendix E: Models of Inter-organizational Relationships on page 318 of this thesis.

The second stage of the operationalization involved a detailed consideration of Gardiner and Simmons' definitions of *component organizations* which represent the different forms of project organization that can be established in order to address *formal* or *contractual* authority and power. Gardiner and Simmons' organization-system model, which focuses on the relationships between the separate component organizations, i.e. the *client organization system* (COS), the *project organization* (PO), the *client project organization* (CPO) and the *project management* system (PM), was then applied to the standardized diagrammatic model of the contractual, functional and alternative inter-organizational relationships for each building project that was investigated. Examples of the resultant diagrams that illustrate the inter-organizational relationships between the component organizations are located in Appendix F: Models of Construction Project Organizations on page 330.

Counting a series of dummy-coded manifest variables, which represented whether an individual organization did or did not satisfy the criteria expounded by Gardiner and Simmons for the categorization of component organizations, completed the third and final stage of the operationalization of POSITIONAL POWER ( $F_4$ ) advantage during this study. This involved measuring the following component organization-related dummy-coded manifest variables: client organization system ( $V_{7A}$ ), project organization ( $V_{7B}$ ), client project organization ( $V_{7C}$ ) and project management ( $V_{7D}$ ). By using the simplified diagrammatic models that illustrate the inter-organizational relationships between the component organizations, it was possible to assign scores to each of the four dummy-coded manifest variables for each organization functioning within an inter-organizational collectivity. For example, a score of one was assigned to the relevant dummy-coded manifest variable each time an organization clearly indicated that it satisfied the criteria for inclusion within that particular component organization, whereas a score of zero was assigned if it did not. The scores allocated to the dummy-coded manifest variables, i.e.  $V_{7A}$ ,  $V_{7B}$ ,  $V_{7C}$  and  $V_{7D}$ , were then added together for each organization located within an inter-organizational dyad, i.e. organization A  $\leftrightarrow$  organization B, and these scores were in turn summed in order to form a measure of the level of dyadic positional or structural power. The POSITIONAL POWER advantage factor ( $F_4$ ) has a range of zero to eight; a high score indicating a high and relatively stable level of structural or positional power within the inter-organizational dyadic relationship.

### 6.3.8 RELATIVE MATURITY ( $F_5$ )

This factor refers to the absolute difference in the length of time two organizations have been established within the same inter-organizational field. Molnar and Rogers (1979) have explained that most discussions regarding organizational age tend to expand upon Stinchcombe's (1965) theory concerning the liability of newness in inter-organizational relations. He affirms the point of view that newly created organizations, particularly fresh categories of organizations, involve contemporary roles that have to be established both *intra*- and *inter*-organizationally. In general, such organizations tend to possess fewer resources in terms of skill, experience and knowledge, which make it much more difficult for them to manage relations with

adequately resourced organizations that are located within the same inter-organizational field. Therefore, age difference or relative maturity may inhibit the development of interdependence (Molnar and Rogers, 1979).

Randall (1973) and Benson (1975) have promoted the supposition that organizations attempting to establish new roles and responsibilities within an existing structure of activity may encounter resistance and opposition from the previously established order. As Molnar and Rogers have claimed, this is because age differences may generate structural conflicts between newly created organizations that are attempting to establish or expand their domains and collectivities of existing organizations that are endeavouring to minimize threats and disruptions to their ongoing activities. They further explain that concerns regarding external relations may exacerbate existing intra-organizational problems, making newly created inter-organizational relationships even more difficult to manage. Age differences may also place newly created organizations at a distinct disadvantage in an established collectivity, because their boundary role representatives will probably not possess the necessary informal inter-organizational associations that often facilitate the resolution of operating conflicts (Molnar and Rogers, 1979).

Stinchcombe underscores the final liability of newness in inter-organizational relations as the distinct absence of reliable, long-term relationships with clients who regularly employ professional services. He acknowledges that clients are normally not opposed to the activities of newly created organizations but, in general, are less familiar with the nature of their services and are also intolerant to fluctuations in the quality of their services. Therefore, because they typically do not possess established constituencies of clients, newly created organizations will usually find themselves disadvantaged during their relations with other groups of organizations. As Molnar and Rogers have explained:

The lack of client support discourages ties with outside groups, and inter-organizational age differences may increase the likelihood of conflict between groups that would exploit the other's disadvantaged situation.

(Molnar and Rogers, 1979: 414)

The **RELATIVE MATURITY** factor ( $F_5$ ) refers to the absolute difference in the length of time two organizations have been operating in the construction industry. Respondents were asked to indicate the year their organization began to function in the north-eastern region of England. The actual number of years of service was computed for each organization and the modulus of the difference in the number of years of service between the two organizations within the dyad was determined, i.e. organization A  $\leftrightarrow$  organization B. The dyad score was then divided by 10.8 – the research project-specific factor that enabled the resulting or moderated dyad score to lie within the practical range of zero to ten – in order to calculate the value of the **RELATIVE MATURITY** factor ( $F_5$ ). A high score indicates that the construction-related organizations united at an inter-organizational interface were established at quite different periods; a low score indicates that both organizations were established at about the same time.

### 6.3.9 **RELATIONAL FAMILIARITY ( $F_6$ )**

Although the literature on inter-organizational relations is very rich in theory and diverse in its academic roots, it is apparent that most scholars appear to consider inter-organizational relationships to be dynamic social phenomena (see Clark, 1965; Gamm, 1981; Laumann and Pappi, 1976; Perrucci and Lewis, 1989; Reid, 1964; 1969; Rogers, 1974; Rogers and Whetten, 1982; Turk, 1970; Walton, 1972; Warren, 1971; Whetten, 1981). In general, the theorists from these distinct research streams have tended to focus their attention upon the evolution, propagation and dissolution of inter-organizational relationships by investigating the sequence of events and interactions among organizational parties that unfold to shape and modify an inter-organizational relationship over time. Consequently, most of this work has predominantly been concerned with either the antecedent conditions or the structural properties of inter-organizational relationships in comparison with other governance forms.

For example, working within Williamson's (1971; 1975; 1979; 1981; 1985; 1986) theory of transaction cost economics that was summarized earlier in Section 5.2 Inter-organizational Relationships on page 114, many scholars of inter-organizational

relations have focused their attention on comparing alternative transaction governance structures, e.g. markets, hierarchies and mixed modes (Coase, 1937;1952; Eccles, 1981b;a; Gunnarson and Levitt, 1982; Reve and Levitt, 1984; Stinchcombe, 1990; Winch, 1985;1987;1989;1995). However, Gulati (1995), from his examination of Williamson's theory, challenges this traditional approach to inter-organizational relations. He concludes that transaction-cost economics is not only concerned with the emergence of organizations *per se* to manage transaction costs<sup>1</sup>, but also with how organizational form and network structures may vary according to the specific types of exchange activities that are generally encompassed. Furthermore, but from a slightly different angle, Granovetter (1985) has contended that organizational decision-makers (or boundary role representatives) use such social networks to overcome the uncertainty and distrust that so often plague market exchanges. In this respect, Granovetter has explained that social networks are a means of actually reducing transaction costs. Mizruchi and Galaskiewicz have pointed out that this can be seen as a trade-off:

. . . enter into business relations with firms and people one already knows and trusts (or who have honorable reputations), and hope that the savings in transaction costs will offset the higher price that one may pay for goods and services.

(Mizruchi and Galaskiewicz, 1993: 54)

Baker (1990), in his study of firms' relations with investment banks, illustrated how pre-existing ties between companies (i.e. *former* inter-organizational relationships) and the inter-personal ties of company employees (i.e. *former* inter-personal relationships between boundary role representatives) influence subsequent co-operative relations between companies (i.e. *future* inter-organizational relationships). Baker also reported that the finance officers (i.e. boundary role representatives) in his study would often use non-market ties – such as family, business and professional, and educational and professional association ties – in an attempt to reduce the overall level of uncertainty and to ensure satisfactory performance during task execution.

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<sup>1</sup> Transaction costs are the costs of developing and maintaining an exchange relationship, monitoring exchange behaviour and guarding against opportunism in an exchange situation (Haksever *et al.*, 1995: 97).



According to Mizruchi and Galaskiewicz this finding strongly suggests that previous or existing social networks influence subsequent inter-organizational relations. A similar point by Molnar and Rogers (1979) goes some way to confirm this notion. They have stated that bonds of trust and familiarity could facilitate effective inter-organizational transactions. In other words, once an inter-organizational network is established, it is apparent that its success (i.e. the satisfactory achievement of collective and individual goals) is partially determined by the success of any former inter-organizational relationships between the network members themselves and the success of any former inter-personal relationships between the network members' boundary role representatives.

The RELATIONAL FAMILIARITY factor ( $F_6$ ) refers to the incidence of prior construction project-related acquaintanceship or familiarity among the parties at the inter-organizational interface. The measure was derived from two observable indicators that reflected the possible levels of prior acquaintanceship between the parties. The first manifest variable, *organizational familiarity* ( $V_9$ ), measured the incidence of familiarity at the *higher* or *organizational* level, e.g. organization A  $\leftrightarrow$  organization B familiarity; and the second manifest variable, *representative familiarity* ( $V_{10}$ ), measured the incidence of familiarity at the *lower* or *boundary role representative* level, e.g. boundary role representative A  $\leftrightarrow$  organization B familiarity and boundary role representative A  $\leftrightarrow$  boundary role representative B familiarity. To quantify the incidence of familiarity at the higher or organizational level, respondents were asked to recount how much experience of working with the other organization located within the inter-organizational dyad their organization had previously gained, i.e. organization A  $\leftrightarrow$  organization B familiarity. A score of one was assigned to the manifest variable  $V_9$  each time a respondent reported that their organization had past experience of working with the other organization in the dyad; otherwise a score of zero was assigned. This procedure was slightly modified and repeated in order to quantify the incidence of relational familiarity at the lower or boundary role representative level. During this stage of the operationalization, the representative familiarity observable indicator ( $V_{10}$ ) was derived from two dummy-coded manifest variables reflecting the classification order of the previous work-related experience that exists at this level, i.e. boundary role representative A

organization B familiarity ( $V_{10A}$ ); and boundary role representative A ↔ boundary role representative B familiarity ( $V_{10B}$ ). A score of one was assigned to the dummy-coded manifest variable  $V_{10A}$  each time a respondent reported that they had previous experience of working with the other organization in the dyad; otherwise a score of zero was assigned. Respondents were also asked to recount how much previous experience of working with the other organization's boundary role representative they had acquired. A score of one was assigned to the dummy-coded manifest variable  $V_{10B}$  each time a respondent reported that they had previous experience of working with their counter boundary role representative; otherwise a score of zero was assigned. The scores for the two dummy-coded manifest variables, i.e.  $V_{10A}$  and  $V_{10B}$ , were then added together in order to derive a measure for the representative familiarity observable indicator ( $V_{10}$ ). To determine the unilateral degree of relational familiarity for each organization functioning within the inter-organizational dyad, the scores allocated to the two manifest variables, i.e. organizational familiarity ( $V_9$ ) and representative familiarity ( $V_{10}$ ), were added together. The unilateral scores for each organization were in turn summed in order to form a reciprocal or aggregate measure of relational familiarity between them. The RELATIONAL FAMILIARITY factor ( $F_6$ ) therefore ranges from zero to six; a high score indicating a high incidence of prior construction-related acquaintanceship or familiarity among the two parties at the inter-organizational interface.

### 6.3.10 ORGANIZATIONAL REPUTE ( $F_7$ )

Organizations are often plagued by the lack of essential resources that are critical to their performance and satisfaction (O'Sullivan, 1977; Smith *et al.*, 1995). These resources generally include clients to serve; legitimacy and competency; information communication and commercial technology; specialized knowledge and experience, or the funds with which to procure them; and the services of people who can direct these resources to the clients (Aldrich, 1972;1975;1976; Brown *et al.*, 1974; Cook, 1977; Levine and White, 1961;1980; O'Sullivan, 1977). Such scarce resources are frequently available from other organizations located within the same inter-organizational field, and co-operation may transpire if both organizations are able to utilize each other's resources in order to achieve their own goals (Aiken and Hage,

1968; Black and Kase, 1963; Bonoma, 1976; Evan, 1965; Levine and White, 1961; Litwak and Hylton, 1962; O'Sullivan, 1977; Paulson, 1976; Reid, 1969; Smith *et al.*, 1995). Paulsen (1976) and Bonoma (1976) have intimated that co-operation between interdependent organizations can be further enhanced if the organizations concerned possess substantially different resources. Furthermore, Aiken and Hage (1968), Evan (1965) and Reid (1969) have reported that the possibility of inter-organizational co-operation increases significantly if the individual goals of the resource-dependent organizations are complementary as opposed to being indistinguishable. If the latter is indeed the case, then social conflict between two organizations is likely to arise if it is apparent that one organization is achieving its goals at the expense of another. As indicated by Evan (1965) and Reid (1969), this situation will doubtless occur if the resource-dependent organizations command identical goals and compete for ownership of the same scarce resources.

Benson (1975) has further explained inter-organizational co-operation. He has indicated that co-operative associations between organizations is affected by a strong, mutual desire to fulfil programme requirements; to maintain a domain; to sustain essential, scarce resources; and to extend a paradigm. Paulsen (1976), on the other hand, has adopted an alternative approach and subsequently hypothesized that co-operation between resource-dependent organizations is positively correlated to the social backgrounds of their administrators (or boundary role representatives). This assertion is confirmed, to a certain extent, by Warren *et al.* (1974), who found that an important component of inter-organizational co-ordination is the *institutionalized thought structure* that is shared by the administrators of the different organizations located within the same inter-organizational collectivity. And, to a large extent, Paulsen's notion is confirmed by Galaskiewicz and Shatin (1981), who discovered that human service organizations were much more likely to co-operate if their administrators possessed similar cultural and religious heritages, especially if they were operating within a turbulent environment (such as the UK construction industry).

Deutsch (1983) has remarked that such studies appear to be explainable by the following assumption, which he labelled 'Deutsch's Crude Law of Social Relations':

. . . the characteristic processes and effects elicited by a given type of social relationship also tend to elicit that type of social relationship.

(Deutsch, 1983: 438)

Deutsch has stipulated, *ipso facto*, that co-operative inter-organizational relationships appear to be induced by a perceived commonality in beliefs and attitudes; a tendency to be charitable and benevolent; a considerate and sincere orientation towards others; an explicit and honest approach to communication; a sensitivity to common interests and goals; and an inclination towards mutual power enhancement. He went on to explain that competitive social relationships between organizations, which so often lead to inter-organizational conflict, are typically induced by the deployment of coercion, threatening behaviour or deception; the avaricious pursuit of individual power enhancement; and the suppression of accurate communication. Deutsch's crude law therefore boldly expresses the latent similarities between the *effects* and *causes* of social relationships, or to put another way, the *genotypical* as opposed to the *phenotypical* attributes of inter-organizational relationships. It also provides insight into the conditions that typically engender co-operative and competitive inter-organizational relationships.

During the evaluation of Ball's (1980; 1988) and Hillebrandt's (1985; 1988) economic theories that were summarized earlier in Chapter 2, it was determined that the formation of co-operative inter-organizational exchange relationships appears to be dependent upon two inter-related factors, viz. *specialization* and *scarcity*. Most organizations perform specialized functions and therefore *must* exchange with other organizations within their particular inter-organizational field in order to obtain essential resources and to market their output. According to Levine and White (1961), the *scarcity* of such essential resources impels:

. . . [an] organization to restrict its activity to limited specific functions. The fulfillment of these limited functions, in turn, requires access to certain kinds of elements, which an organization seeks to obtain by entering into exchanges with other organizations.

(Levine and White, 1961: 587)

Thus, according to Aldrich (1974) and Cook (1977), the limitations on the availability of essential organizational resources necessitate interdependence and foster specialization.

Levine and White's (1961) classic study of relationships among community health and welfare agencies demonstrates that the extent of organizational interaction and the categories of elements exchanged depend upon the *function*<sup>1</sup> of the organization. In other words, some organizational functions necessitate more inter-organizational exchanges than others. Levine and White succinctly explain this point by stating: "the primary function determines an organization's need for exchange elements" (Levine and White, 1961: 596). They discovered, for example, that organizations whose functions are to educate the public about a specific disease and not to remedy the disease received a lower rate of referrals when compared with treatment-orientated organizations operating within the same field. Furthermore, Levine and White discovered that other variables, such as *organizational prestige*, appear to influence the interaction patterns between organizations within the limits established by the function variable (Levine and White, 1961: 595). Therefore, according to Levine and White, social interaction between resource-dependent organizations is a direct consequence of their necessity to fulfil specific functions, and the effectiveness of such co-ordinated inter-organizational exchange is dependent upon their level of organizational prestige or repute.

Organizational respectability refers to the degree to which an organization possesses the necessary qualities or attributes to engender project-related confidence among its interdependent associates. In a similar manner to the operationalization of the CLIENT REPUTE factor (F<sub>1</sub>) that was discussed in Section 6.3.4 CLIENT REPUTE (F<sub>1</sub>) on page 173, the ORGANIZATIONAL REPUTE factor (F<sub>7</sub>) was measured during this study by asking respondents to rate the extent to which organizational respectability characterized their own organization's co-operative relationship with each of the remaining interdependent organizations located within the inter-organizational collectivity for a particular building project. An ordinal ranking scale

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<sup>1</sup> Organizational functions are a set of inter-related services or activities that are instrumental, or believed to be instrumental, for the realization of an organization's objectives (Levine and White, 1961).

that employed five integers in uniform descending order, i.e. from five to one, was used to measure each respondent's intuitive perception of organizational respectability, i.e. from *very reputable* to *not at all reputable*, for the opposite organization within a particular dyad. The attitude measurement scale, *Likert Scale A*, that was used during the measurement of this factor is illustrated in Table 10.1 in Appendix A: Attitude Measurement Scales on page 307. To determine an aggregate measure of organizational respectability within a dyad, i.e. organization A ↔ organization B, the response obtained from the boundary role representative of organization A was added to the response obtained from the boundary role representative of organization B. The ORGANIZATIONAL REPUTE factor (F<sub>7</sub>) therefore ranges from two to ten; a high score being indicative of substantial mutual respectability between a pair of resource-dependent organizations during the realization of a building project.

### 6.3.11 PROFESSIONAL STATUS (F<sub>8</sub>)

During the complex process of designing and constructing a building, members of different construction-related occupations (i.e. architectural design consultants, structural engineering design consultants, building services engineering design consultants, construction cost consultants, project management consultants, etc.) are required to regularly come into close contact with each other in order to pursue and realize the primary goals of their organization and common client. According to Faulkner and Day (1986), the nature of the professional relationships involved will tend to range from that of: “formal authority of one position over another, to the informal interaction of equals” (Faulkner and Day, 1986: 245). Given the broad spectrum of potential working relationships that may occur during the realization of a building project, how members of particular professions perceive each other (i.e. occupational cognition) is a critical factor in determining the level of performance within building project organizations (see Section 3.8 Construction Project Organization Systems on page 75 for an explanation of Gardiner and Simmons' *organization-system model* of construction projects). Faulkner and Day have indicated that occupational cognition among construction-related professionals is dependent not only upon their experience of working relationships (i.e. occupational

maturity), but also upon the current attitude and opinion of society and their personal disposition towards each other.

As previously discussed in Section 2.5 Characteristics of the Construction Industry on page 28 of this thesis, the range of skills required to design and construct a building is wide. This attribute, along with the historical fact that the construction industry has taken many decades to arrive at its current social and organizational structure, has resulted in the formation of a number of interdependent professionals each laying claim to their own distinctive body of knowledge and expertise. The fragmented structure of the UK construction industry, which was discussed in Section 2.6 Fragmentation in the Construction Industry on page 32, is characterized for the individual practitioner by several different, if not conflicting, loyalties to a particular building project, a construction-related organization and a professional institution. Gardiner and Simmons' (1992b; 1992a) project-based organization model, which plays an important role in the theoretical development of this study (see Section 3.8 Construction Project Organization Systems on page 75 for an explanation of Gardiner and Simmons' organization-system model), encourages a high level of interdependence between construction-related professionals during their working relationships.

In a similar manner to the accountancy, commercial, engineering, legal, medical and other professions in British society, social status is an issue of particular concern among the construction-related professions. Professional relationships during the construction of buildings tend to be fairly short-lived, often lasting no more than one or two years in duration. Within such a constantly changing, dynamic working environment, the requirement for contractual specification of relationships and responsibilities is high. This control mechanism has historically represented the most effective way of dealing with the need to govern high levels of uncertainty regarding organizational roles and responsibilities. Faulkner and Day have suggested that in situations where uncertainty and competitiveness are high, such as the UK construction industry, individuals are generally more likely to demonstrate greater concern towards non-contractual relationships. This is usually typified by an enhanced concern for relative social status or prestige, which is manifest along

occupational lines, because these are more stable than those of the project environment (Faulkner and Day, 1986).

Social status or prestige is an important aspect of the complex social interactions that generally take place between construction clients, individuals (or boundary role representatives), construction-related organizations and professional institutions. According to Faulkner and Day, in the highly diversified setting of the construction industry, status tends to act as a mechanism by which relationships between individuals and organizations may be defined and regulated. They go on to say that inequalities of status can lead to imbalanced communications and working relationships between the different construction-related groups. This observation directed Faulkner and Day to postulate that inter-professional status evaluation can have an effect upon project performance and organizational relationships. Bearing in mind the focus of this particular Ph.D. investigation, Faulkner and Day's proposition can be modified slightly to suggest that inter-professional status evaluation can lead to the manifestation of social conflict within construction project organizations.

Many theorists (see Adler and Kraus, 1985; Coxon and Jones, 1978; Faulkner and Day, 1986; Hope, 1982; Miller, 1980; Miller and Form, 1980; Paulson, 1976) have attempted to investigate how people perceive occupations (i.e. occupational cognition). They have demonstrated that people tend to use many *single-feature* or *social status* dimensions – such as material reward and benefits; power and authority; autonomy; knowledge, skills and expertise; education and training; and value to society at large – when rating or comparing titles of occupations. Coxon and Jones (1978) used a different type of dimension during their study: a dimension which measured the degree to which an occupation is perceived as being *people-orientated* or *object-orientated*. Following a critical evaluation of prior work, Faulkner and Day have stated that the extent and accuracy to which each of the dimensions identified in the literature may be appropriately correlated with professional status is disputable. In other words, no single dimension has so far proved to be accurate in terms of measuring professional status.

Occupational status is therefore an important variable to be considered when investigating social conflict within construction-related inter-organizational



collectivities. The extent of its importance is heightened when the movement of social conflict in and between organizations is acknowledged as an influencing factor upon the manifestation of dysfunctional relationships at the inter-organizational level. In Section 4.8.2 Levels of Organizational Conflict on page 103, Smith's (1989) theory regarding the socio-psychological processes through which conflicts move around organizations and become expressed at locations quite removed from their place of origin was discussed. When Smith's work is related to Rahim's (1992a; 1992b) ideas regarding the levels of organizational conflict, which were discussed in Section 4.8.2 Levels of Organizational Conflict on page 103, it can be hypothesized that conflict as a result of occupational status at the inter-personal level could be displaced and expressed at the inter-organizational level.

The PROFESSIONAL STATUS factor ( $F_8$ ) refers to the extent to which the occupational or professional status of the *boundary role representatives* influences and regulates the level of inter-organizational conflict within their dyad. Accepting Faulkner and Day's argument that scholars' attempts to identify accurate dimensions for correlating occupational status were futile, it was decided to develop a project-specific procedure for measuring professional status among the boundary role representatives. This involved asking respondents (or boundary role persons) to complete the professional status evaluation questionnaire that is illustrated in Figure 16.1 in Appendix G: Professional Status Evaluation Questionnaire on page 338. Three *single-feature* dimensions or observable indicators for determining professional status are incorporated into the questionnaire; they are entitled *education status* ( $V_{12}$ ), *specialist status* ( $V_{13}$ ) and *remuneration status* ( $V_{14}$ ). Values for these three observable indicators, i.e.  $V_{12}$ ,  $V_{13}$  and  $V_{14}$ , were derived from responses to selected questions contained within the professional status evaluation questionnaire. For instance, questions two and nine were used to determine the value for the education status ( $V_{12}$ ) observable indicator; questions three, four and six were used to determine the value of the specialist status ( $V_{13}$ ) observable indicator; and question eight was used to determine the value of the remuneration status ( $V_{14}$ ) observable indicator.

The procedure for calculating the value of the education status ( $V_{12}$ ) observable indicator was relatively straightforward. It involved adding together the scores for

the two dummy-coded manifest variables *educational attainment* ( $V_{12A}$ ) and *professional affiliation* ( $V_{12B}$ ). Each time a respondent indicated they had attained a particular level of education, i.e. a post-sixteen qualification listed in question two of the questionnaire, a score of one was assigned to the educational attainment ( $V_{12A}$ ) dummy-coded manifest variable. Each time a respondent indicated they had an affiliation with a listed professional body or institution, a score of one was assigned to the professional affiliation ( $V_{12B}$ ) dummy-coded manifest variable. For example, assuming a respondent indicated they had gained GCE A levels, a BTEC HND and a degree, a score of three would be assigned to the educational attainment ( $V_{12A}$ ) dummy-coded manifest variable. If the respondent also indicated they were affiliated to the CIOB and the APM, a score of two would be assigned to the professional affiliation ( $V_{12B}$ ) dummy-coded manifest variable. The scores for the two dummy-coded manifest variables, i.e.  $V_{12A}$  and  $V_{12B}$ , were then added together in order to determine the value of the education status ( $V_{12}$ ) observable indicator. In the example, this would lead to a score of five being awarded to the education status ( $V_{12}$ ) observable indicator.

The procedure for calculating the value of the specialist status ( $V_{13}$ ) observable indicator was slightly more complicated. This involved adding together the scores of three dummy-coded manifest variables: *construction industry experience* ( $V_{13A}$ ), *current employer experience* ( $V_{13B}$ ) and *current position experience* ( $V_{13C}$ ).

Questions three, four and six of the professional status evaluation questionnaire were used to determine values for these three dummy-coded manifest variables. The three questions provided respondents with a choice of five possible responses. For each question, a score of one was assigned to the lowest order response; a score of two was assigned to the next level response; a score of three was assigned to the next level response and so on until a maximum score of five was assigned to the highest order response. For example, assuming a respondent indicated they had more than ten years of experience working in the construction industry, between two to five years of experience of working with their present employer and one to two years of experience working in their current position, a score of five would be assigned to the construction industry experience ( $V_{13A}$ ) dummy-coded manifest variable, a score of three would be assigned to the current employer experience ( $V_{13B}$ ) dummy-coded manifest variable and a score of two would be assigned to the current position

experience ( $V_{13C}$ ) dummy-coded manifest variable. The scores for the three dummy-coded manifest variables, i.e.  $V_{13A}$ ,  $V_{13B}$  and  $V_{13C}$ , were then added together in order to calculate the value of the specialist status ( $V_{13}$ ) observable indicator. In the example, the score for the specialist status ( $V_{13}$ ) observable indicator would be ten.

The procedure for calculating the value of the remuneration status ( $V_{14}$ ) observable indicator is similar to the procedure for determining the specialist status ( $V_{13}$ ) observable indicator, but this time it involves only one dummy-coded manifest variable. Question eight of the professional status evaluation questionnaire was used to assign a score to the *remuneration* ( $V_{14A}$ ) dummy-coded manifest variable. The question provided the respondent with a choice of eleven possible options. A score of one was assigned to the lowest order response; a score of two was assigned to the next level response; a score of three was assigned to the next level response and so on until a maximum score of six was assigned to the highest order response. For example, assuming a respondent indicated they had a gross salary of more than £30,000 for the past twelve months prior to completing the professional status evaluation questionnaire, a score of six would be assigned to the *remuneration* ( $V_{14A}$ ) dummy-coded manifest variable. The score for the remuneration status ( $V_{14}$ ) observable indicator directly relates to the score of the remuneration ( $V_{14A}$ ) dummy-coded manifest variable.

The scores for the three dimensions or observable indicators, i.e.  $V_{12}$ ,  $V_{13}$  and  $V_{14}$ , were then added together in order to derive a measure of the level of professional status for the respondent. To determine the aggregate level of professional status within the dyad, i.e. organization A  $\leftrightarrow$  organization B, the score for the boundary role representative of organization A was added to the score for the boundary role representative of organization B. This aggregated dyad score was then divided by 4.8 – the research project-specific factor that enabled the resulting or moderated dyad score to lie within the practical range of zero to ten – to calculate the value of the PROFESSIONAL STATUS factor ( $F_8$ ). A high score indicates that the boundary role representatives working together at the inter-organizational interface will regard each other as equals in terms of professional status.

#### 6.4 HYPOTHEZED MODEL

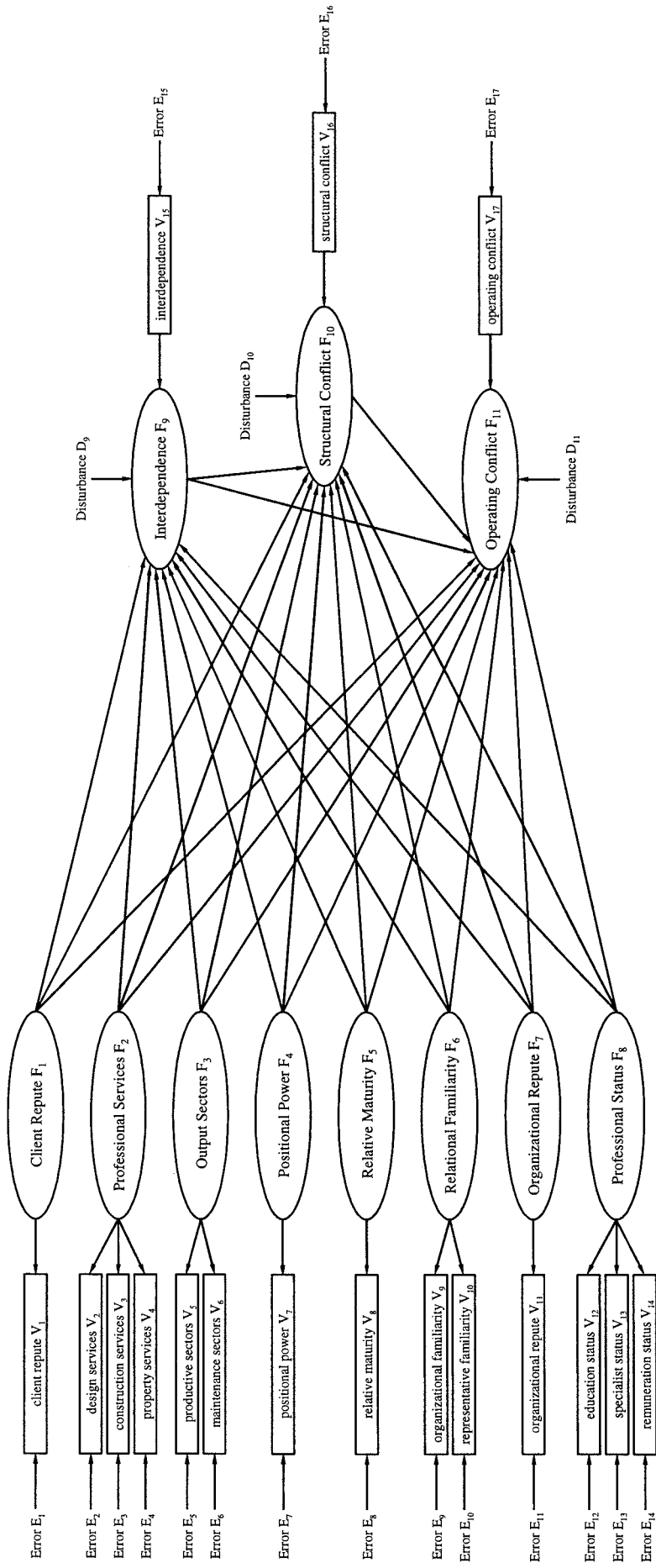
Structural equation modelling encompasses a discrete collection of statistical testing procedures that enable a set of hypothesized relationships between one or more independent variables (IVs) and one or more dependent variables (DVs) to be investigated. The testable variables can be either continuous or discrete. Structural equation modelling is known by many different names; these include causal modelling, causal analysis, simultaneous equation modelling, analysis of covariance structures, path analysis and confirmatory factor analysis. Originating from multi-equation modelling, which was developed principally in econometrics and merged with the principles of measurement from sociology and psychology, structural equation modelling is currently a tool that is utilized in managerial and academic research.

Structural equation modelling diagrams, similar to the one developed by Molar and Rogers (1979) that is illustrated in Figure 5.5 on page 159, are fundamental to structural equation modelling. Several conventions are universally employed when creating structural equation modelling diagrams. Measured variables, which are also known as observed variables, indicators or manifest variables, are represented by squares or rectangles. Factors, which are also called constructs, latent or unobserved variables, are represented by circles or ellipses. Hypothesized causal relationships between variables are indicated by arrows which have either one or two heads. The absence of an arrowhead between variables implies that no direct relationship has been hypothesized. A line with one arrowhead present represents a hypothesized direct relationship between two variables, with the arrowhead pointing to the dependent variable. A line with an arrowhead at both ends indicates an unanalysed relationship, or in other words, a covariance between two variables with no implied direction or effect. Clarity of text within structural equation modelling diagrams is improved by using initial capital letters for the labels of factors and using lowercase letters for measurement variables. The main advantage of using structural equation modelling diagrams is their ability to visually clarify the hypothesized relationships among the different variables. They also enable the direct translation of the model into a series of simultaneous equations which are needed for the statistical analysis of the hypothesized relationships.

An essential aspect of structural equation modelling is the construction of a hypothesized model of reality based on the current theory in the particular area of investigation, which in this case is social conflict between pairs of project-related organizations within the UK construction industry. Given this theoretical base, the model is constructed as a set of cause-effect relationships. Figure 6.2 on page 203 represents the hypothesized theoretical model of the current study. Eight factors or constructs, i.e.  $F_1$  to  $F_8$ , are presented in this model, and they are assumed to be independent of each other. The remaining three factors or constructs, i.e.  $F_9$  to  $F_{11}$ , are defined as endogenous. Causality is presumed to flow in the direction of the unidirectional arrows. Thus, the hypothesized structural model in Figure 6.2 proposes that CLIENT REPUTE ( $F_1$ ) and PROFESSIONAL SERVICES ( $F_2$ ), for example, have direct and positive impacts upon INTERDEPENDENCE ( $F_9$ ), STRUCTURAL CONFLICT ( $F_{10}$ ) and OPERATING CONFLICT ( $F_{11}$ ). This part of the structural equation model, i.e. the hypothesized relationships among the factors or constructs, is called the *structural model*. The remaining part of the model that relates the measured variables to the factors or constructs is sometimes called the *measurement model*. Once again using Figure 6.2 as an example, the OUTPUT SECTORS ( $F_3$ ) factor and the 'productive sectors' ( $V_5$ ) and 'maintenance sectors' ( $V_6$ ) indicators form part of the *measurement model*. No direct negative effects are included within the structural equation model that is to be explored during this study. The model is also consistent with past research and theory, as outlined in Section 6.3 Operationalization of Constructs on page 163

According to Ullman (2001), there are a number of distinct advantages to be gained from using structural equation modelling as opposed to a number of other more commonly-used multivariate statistical techniques, such as standard, sequential and statistical (stepwise) regression; factor analysis; and multivariate analysis of variance and covariance. For instance, Ullman explains that when relationships among factors are to be examined (which is the aim of this Ph.D. research project), the hypothesized relationships are generally free of measurement error, because the error has been estimated and removed; thus leaving only common variance. Hence, when the phenomena of interest are complex and multi-dimensional, such as the hypothesized

**Figure 6.2 Path Diagram of a Hypothesized Structural Model of Social Conflict in Construction-related Inter-organizational Collectivities in the UK**



causal relationships between the comparative organizational variables that are to be analysed during this particular study, and which are presented in the path diagram shown above in Figure 6.2 on page 203, structural equation modelling is the only multivariate analysis technique that allows complete and simultaneous tests of all the relationships (Ullman, 2001).

The results of the proposed structural equation modelling procedure will therefore permit an evaluation of the consequences of the causal inferences by assessing dyadic relationships within a multivariate causal context. In doing so, it should provide increased confidence in understanding the causes of social conflict at the inter-organizational level in project organizations within the UK construction industry.

## 6.5 FORMATION OF INTER-ORGANIZATIONAL DYADS

In Section 5.8 Levels of Analysis for Inter-organizational Relations on page 136, it was explained that research on the topic of inter-organizational relations ranges across a number of levels and units of analysis, including the organization, the inter-organizational dyad and the inter-organizational network. The theories presented in this section were extracted from the work of Gamm (1981), who evaluated and abridged the influential studies on inter-organizational relations that were made available to him at the time. Following his appraisal, Gamm suggested that one of the most confounding issues in the study and application of inter-organizational theory is that of problem specification. In other words, the clear and precise specification of units and levels of analysis in discussions of inter-organizational relations is frequently confused, overlooked or even ignored.

Molnar and Rogers (1979), in their study of relationships between agencies in the inter-organizational field of natural resource management, examined one-hundred-and-forty-seven dyadic relationships in order to explain conflict on the basis of the similarities and differences of the interacting organizations. According to Gamm, they made the decision to use the dyadic level of analysis for one important reason: at the dyadic level of analysis, the theorist is predominantly concerned with

specifying the nature of the relationships and the similarities and differences between pairs of inter-related organizations relative to standard bases of comparison. Thus, the relative attributes of the organizations that comprise a dyad and aspects of the inter-organizational relationship tend to account for the formation, maintenance or modification of the relations among pairs of organizations.

Embracing the methodological approach adopted by Molnar and Rogers, this study will attempt to explore dyadic relationships among networks of construction-related organizations in the north-eastern region of England. The formation of dyads during this study will be controlled by the theory of network membership proposed by Evan (1965; 1978) and Warren (1967). They have conceptualized the inter-organizational network as a contextual variable that affects interdependence and conflict relations. In other words, the inter-organizational network is regarded as a context in which social interaction occurs, and as a result, is likely to influence the nature and intensity of the relations between the organizations. According to Molnar and Rogers, different networks may face different organizational environments, and fluctuating environmental conditions may invoke a unique set of organizational responses to a common uncertainty.

In Section 5.9 Inter-organizational Collectivities on page 139, the work of Van de Ven *et al.* (1974; 1975) was critiqued. Van de Ven and his colleagues have argued that networks of organizations can be regarded as social systems. Their proposition is based upon the theoretical framework developed by Parsons (1949; 1956a; 1956b; 1964). He defined a social system as a discrete set or finite series of goal-directed behavioural acts that are performed by participants interacting with one another. Parsons created the term *inter-organizational collectivity* to define a social system which consists entirely of interacting organizations. Using Parsons' theory as the principle element of their work, Van de Ven *et al.* presented a very simple situation-specific environmental system model for inter-organizational collectivities. Their model is illustrated in Figure 5.1 on page 143 and is described in detail on page 142. The theoretical basis of the simple environment model will be used to conceptualize inter-organizational collectivities during the current study. This will enable inter-organizational dyads to be easily formed and investigated using Brown's (1983) model for defining the elements of an inter-organizational interface, which was



discussed in Section 5.11 Elements of Inter-organizational Interfaces on page 148 and illustrated in Figure 5.3 on page 150. It can therefore be argued that Van de Ven and his associates have established a macro-level model for representing the network of social relationships that typically exists between groups and pairs of organizations, whereas Brown has formulated a micro-level model which identifies the constituents of an inter-organizational dyad, viz. the organizations, the inter-organizational interface and the boundary role representatives. When united, Van de Ven and his associates' and Brown's models provide the theoretical structure from which to conduct this study into social conflict between pairs of construction-related organizations in the north-eastern region of England.

Although Brown's model of an inter-organizational interface is fundamental to the theoretical and methodological basis of the current study, it also provides a platform from which two critical procedural questions arise and stand: viz. to what extent can inter-organizational research be conducted using key informants (i.e. boundary role representatives), and to what extent are the self-reported data of inter-organizational networks accurate and reliable? Answers to these two important methodological questions can be found in the literature from two infrequently quoted sources.

The first is located in a paper published by Kumar *et al.* (1993), which examines the use of key informant methodology by researchers investigating inter-organizational relationships. In their paper Kumar and his associates argue that although authors have advocated the use of multiple informants to increase the reliability and validity of reports, this approach can lead to significant variance arising between the reports. Kumar and his colleagues have explained that when data have been collected from multiple informants in inter-organizational relationship research, the data have often failed to demonstrate high levels of perceptual agreement (see Anderson and Narus, 1990). This is because, as Golden (1992), Hambrick (1981) and Schwenk (1985) have suggested, disagreements between the informants' reports are likely to arise because of differences in both knowledge and perception. Thus, as Kumar and his compatriots have indicated, informant bias can taint studies on inter-organizational relationships conducted using multiple informants. The decision is therefore made to ground this study upon data extracted from single informants; thus replicating the methodological approach adopted by Molnar and Rogers (1979).

The answer to the second question is found in a paper published by Calloway *et al.* (1993), which attempts to resolve issues involving the accuracy and reliability of self-reported or *cognitive* data for studies of inter-organizational behaviour.

Calloway and his colleagues have stated that although analysis of network data depends on the quantification of relationships, it is unclear as to the most accurate and objective method for extracting information from them. The depth of their thinking is highlighted by the following quotation:

There are a couple of problems with using either indicators or direct observations as a method of collecting network data in IO [inter-organizational] studies. In the case of using direct observational data, the size of the networks must be small and manageable indicating this method may only be practical in terms of intraorganizational studies. One would also be hard pressed to find a relationship that could be observed taking place between organizations. While the data collected in this fashion may circumvent the problem of reliable data, documenting and counting relationships in large networks is problematic since IO networks probably, depending on the nature of the study, include many organizations in an environment just too large to observe. Further, in direct observational studies involving IO relations, decisions must be made as to when a relationship actually begins and ends; a problematic yet crucial aspect of any network analysis strategy.

(Calloway *et al.*, 1993: 380)

As a solution to this inherent problem for studies of inter-organizational relations, Calloway and his associates suggest the use of surveys and questionnaires as recommended by Morrissey *et al.* (1985) and Bolland (1985). Instead of relying on quantitative counts of exchanges between organizations, these techniques rely upon a respondent's expert knowledge of the associations between their organization and all others within the network (or inter-organizational collectivity). Calloway and his colleagues have suggested that survey methods seem to be well-suited to studies of inter-organizational relations in several ways, which include:

1. They provide a way to a priori and correctly bound the network. As a result, all necessary organizations are included in a survey.

2. The issue of what constitutes a link can be defined in the survey and more easily measured.
3. The design allows for larger networks in terms of the number of organizations studied.

(Calloway *et al.*, 1993: 380)

In terms of this Ph.D. investigation, this method would appear to be promising but, unfortunately, is not without its problems. For example, Killworth and Bernard (1979) have demonstrated that people often have difficulty recalling who they have interacted with in the past. As surveys rely on respondents' abilities to recall, the quality of data collected in this manner can be suspect on the grounds of reliability. However, as previously discussed above, the current study will attempt to compare the similarities and differences between pairs of construction-related organizations relative to a standard basis of comparison, viz. exogenous and endogenous variables. Ergo, it is anticipated that the data extracted from the informants' reports and utilized during the comparative analysis of this project are less likely to be unreliable. This procedure was successfully adopted by Molnar and Rogers during their 1979 study.

## 6.6 DATA COLLECTION AND ANALYSIS

The second of Calloway's (1993) three reasons why survey methods are well-suited to studies of inter-organizational relations brings one important question to the fore regarding the intended procedure for gathering data during this research project: which of the many links in the overall construction process should be investigated? The answer to this question can be found in Section 2.10 Subcontracting in the Construction Industry where Gardiner and Simmons' (1992b) simplified model of the construction process was discussed and illustrated in Figure 2.5 on page 42. In this section it was stated that fragmentation in the UK construction industry has produced the highly criticized problems of co-ordination between the design and construction sub-processes of building projects. In providing a reasonable argument for this postulation, Sir Harold Emmerson's influential report on the problems facing the construction industry in the 1960s was cited, wherein he wrote: "In no other industry is the responsibility for design so far removed from the responsibility for production" (Ministry of Works, 1962: 9). The practical implication of this for the

data collection procedure of the current study is that inter-organizational conflict is most likely to occur within the link between the design and construction sub-processes. Therefore, this link will be investigated further.

The data used in this analysis were gathered during semi-structured depth interviews conducted with twenty-three representatives of twelve construction-related organizations that operate within the north-eastern region of England. These organizations included an architectural design consultant (which is regarded as the *focal organization* during this study), three structural engineering design consultants, one building services engineering design consultant, three construction cost consultants and four primary construction contractors. The twelve organizations share inter-related functions in the design and construction of buildings. Table 11.1 in Appendix B: Construction-related Professional Services on page 309 details the construction-related professional services provided by these organizations, i.e. the sample organizations.

The organization set was identified following a pilot study interview with a senior manager from the focal organization. Six purposive case study building projects were selected during the pilot study interview from a total of twelve possible projects. According to Aiken and Hage (1968), purposive sample selection is not unusual in organizational studies, especially when the units of analysis form a substantial part of the observed sample, as is the case in this investigation. This selection procedure enabled the researcher to select a small sample that appeared to illustrate intriguing issues and behaviours associated with the manifestation of social conflict. During the selection procedure the researcher was required to think critically about the parameters of the population. As a result of the usual research-related constraints of time, cost and travel resources, the decision was made to limit the study to an investigation of construction-related organizations that operated within the north-eastern region of England with prior experience of procuring buildings within the CI/SfB 3: Administrative, Commercial and Protective Facilities category (see Table 12.3 in Appendix C: CI/SfB Classification of Building Types on page 311).

Once this parameter was established, the senior manager of the focal organization proceeded to contact senior management representatives of the organizations that were selected for inclusion within the study. This initial contact was then followed-up by the researcher, who proceeded to conduct explanatory telephone discussions with each of the senior managers. The aim of the discussion was to reassure each senior manager that the research project would be conducted non-judgementally, be considerate of ethical and political issues, and be acutely sensitive to both personal and commercial information. The complete anonymity of the respondents was stated as a mechanism by which these standards would be achieved and maintained.

Data regarding the social relationships between the organizations involved in the design and construction sub-processes of each building project were gathered from a key informant (or boundary role representative) within each organization taking part in the study. Boundary roles are those occupied by persons who serve as liaisons with other organizations or who are deemed as particularly knowledgeable about their own organization's relationships (Calloway *et al.*, 1993). As discussed above, the respondents chosen were identified from telephone conversations with senior management representatives of the organizations participating in the research project.

Data collection involved the following three step process, similar to the one used by Gardiner and Simmons (1992b) in their study of conflict and change in construction projects:

1. The researcher wrote to each organization's respondent (or boundary role representative) to explain the study's aim, to request their full participation, to request copies of company marketing brochures and financial reports, and to schedule an interview.
2. An in-person semi-structured depth interview was conducted with the key informant and recorded on audiotape. Permission to audio-record the proceedings was sought prior to the interview commencing. Depending upon the issues explored by the researcher, each semi-structured depth interview tended to last between one to two hours. The interview was structured in order to satisfy the requirements pertaining to the operationalization of the constructs as discussed in Section 6.3 Operationalization of Constructs on page 163. The protocol of the semi-structured exploratory interview is illustrated in Table 17.1 in Appendix H: Exploratory Interview Protocol on page 339.

3. Following each interview, the researcher orientated the respondent to the format and content of the self-administered professional status evaluation questionnaire, which is illustrated in Figure 16.1 in Appendix G: Professional Status Evaluation Questionnaire on page 338. Ultimately, a response rate of 100% for all organizations in all six building projects was obtained.

Although the research method was not specifically designed to consider the following data reliability issues, the data have a number of unique attributes which make them appropriate for dealing with these issues. These attributes include:

1. The inter-organizational collectivities are small in size when compared with the size of similar studies. Within the six building projects investigated during the current study, the total number of possible dyadic relationships, or pairs of organizations, was forty. These forty pairs or dyads then became the units of analysis.
2. The inter-organizational collectivities present a tightly-focused research design which incorporates six purposive case studies for exploring key themes and relationships among the constructs. Although bounding inter-organizational collectivities is an all together separate issue from exploring data reliability, it does directly impinge upon this Ph.D. investigation. This is because when all six building projects are considered together, response correlations are not biased by the inclusion or exclusion of particular organizations which, for the most part, tend to be strongly inter-related.

Following the completion of the interviews with the twenty-three respondents, the process of transcribing the material began. Depending upon the length of the interview, each interview took around two to three days to transcribe. Interviews which were comprised of fairly short, distinct sentences were relatively straightforward to transcribe, whereas interviews which contained long, vague commentaries with many side-tracking sub-clauses took considerably longer to transcribe. The aim of the transcription process was to retain the intended sense and meaning of the respondents' replies. Spoken English does not always convey the same meaning when it is presented in its written form. This problem had to be taken into consideration when quoting directly from the transcripts when exploring the dominant themes in Section 7.4 Results of Exploratory Case Study Analyses on page 227.

Each transcript was compared with its audio-recording in order to verify the accuracy and reliability of the transcription process. This significantly increased the overall processing time to around four to six days per interview. In order to establish and maintain the anonymity of the respondents, during the verification process, the transcripts were coded according to the principles discussed by Miles and Huberman (1994) and De Vaus (2002). This approach was used to establish the anonymity of the participants. The final code included three levels or components of coding: at the primary level was a code for the building project identification number; at the secondary level was a code for the organization identification number; and at the tertiary level was a code for the boundary role representative identification number. For example, BLD01-ORG01 is the code used to represent *organization #1* in *building project #1*. This procedure is extended slightly for boundary role representatives. BLD03-ORG02-REP01 is the code used to represent *boundary role representative #1* of *organization #2* in *building project #3*.

When the interviews were transcribed, verified and coded, it was possible to extract data in order to analyse the theoretical propositions expressed in the *structural model* as diagrammed in Figure 6.2 on page 203. The hypotheses were analysed using standardized partial regression coefficients with EQS version 5.7b (the rationale for the use of EQS version 5.7b during this study is outlined in Section 7.3 Results of Structural Equation Modelling on page 216). In order to obtain these coefficients, the following structural equations were solved using ordinary least squares methods:

$$F_9 = p_{9,1}F_1 + p_{9,2}F_2 + p_{9,3}F_3 + p_{9,4}F_4 + p_{9,5}F_5 + p_{9,6}F_6 + p_{9,7}F_7 + p_{9,8}F_8 + p_{9,9}E_9$$

$$F_{10} = p_{10,9}F_9 + p_{10,1}F_1 + p_{10,2}F_2 + p_{10,3}F_3 + p_{10,4}F_4 + p_{10,5}F_5 + p_{10,6}F_6 + p_{10,7}F_7 + p_{10,8}F_8 + p_{10,10}E_{10}$$

$$F_{11} = p_{11,10}F_{10} + p_{11,9}F_9 + p_{11,1}F_1 + p_{11,2}F_2 + p_{11,3}F_3 + p_{11,4}F_4 + p_{11,5}F_5 + p_{11,6}F_6 + p_{11,7}F_7 + p_{11,8}F_8 + p_{11,11}E_{11}$$

In these simultaneous equations,  $F$ , with a numerical subscript, is the measured or independent variable in standardized form, and when it appears on the left-hand side of the equation, it is a dependent variable;  $E$ , with a numerical subscript, is the unmeasured error or residual effect associated with the dependent variable;  $p$  is the path coefficient or partial regression coefficient of the standardized variables.

During the structural equation modelling exercise, the usual assumptions were made while solving the simultaneous equations. These include:

1. Relationships among the variables are asymmetrical and causal.
2. Residuals are normally distributed with a mean of zero, are uncorrelated with each other and the independent variables, and have a constant variance for all combinations of levels of independent variables.
3. Independent variables are internally measured without error and are uncorrelated.

(Paulson, 1976: 320)

This method of analysing irreversible, sequential causal models from cross-sectional data has been discussed in the context of structural equation modelling by Bentler (1995), Bentler and Yu (1995) and Ullman (2001).

## 6.7 SUMMARY

This chapter has presented the theoretical framework and methodological rationale for this study into construction industry inter-organizational relationships and social conflict therein. Molnar and Rogers' comparative model was reformulated using constructs that were specified from the literature and considered appropriate to the contextual setting of the UK construction industry. The operationalization of each construct was considered and discussed in detail, linking its conceptualization to appropriate and acknowledged social and behavioural science-related theories.

In the spirit of positivism, the mixed method approach for evaluating the accurate specification and applicability of the revised model to the contextual setting of the UK construction industry was outlined and justified. It was explained that the resulting structural equation model includes a number of hypothetical relationships between its constituents. The primary conjecture of the model's construction is that there are eight exogenous organizational variables, i.e. CLIENT REPUTE ( $F_1$ ), PROFESSIONAL SERVICES ( $F_2$ ), OUTPUT SECTORS ( $F_3$ ), POSITIONAL



POWER ( $F_4$ ), RELATIVE MATURITY ( $F_5$ ), RELATIONAL FAMILIARITY ( $F_6$ ), ORGANIZATIONAL REPUTE ( $F_7$ ) and PROFESSIONAL STATUS ( $F_8$ ), which are directly associated with the three endogenous organizational variables, i.e. INTERDEPENDENCE ( $F_9$ ), STRUCTURAL CONFLICT ( $F_{10}$ ) and OPERATING CONFLICT ( $F_{11}$ ). The second conjecture is that interdependence and structural conflict influence the occurrence of operating conflict, and that structural conflict has causal origin within interdependence.

It is recognized that it is extremely unlikely that these comparative associations are exhaustive. There may well be unexpected variables and unpredicted associations, particularly unanticipated correlations between the exogenous organizational variables. Nevertheless, the new model, as it stands, has a very strong theoretical basis, and it therefore accords very strongly with the literature reviewed.

## **7 DATA ANALYSIS AND RESULTS**

### **7.1 INTRODUCTION**

The aim of this chapter is to present the findings of this study to identify the factors which influence the occurrence of social conflict between construction-related organizations in the north-eastern region of England. At present, very little is known about the nature of the exogenous and endogenous organizational variables that influence inter-organizational conflict in the construction industry. This chapter will overcome this deficit by presenting the results of a structural equation modelling exercise on the hypothesized model that was discussed in Chapter 6. It will also detail the results of the qualitative interviews that were conducted with twenty-three boundary role persons of the twelve construction-related organizations involved in the design and construction of the six observed case study building projects. Within-case content analysis of the textual data will provide reassuring confirmation of the structural equation model's theoretical specification and measurement.

### **7.2 ATTRIBUTES OF OBSERVED PROJECTS AND PARTICIPANTS**

The six building projects that were purposively selected as appropriate and intriguing task environments from which to explore networks of social relationships were all classified according to the CI/SfB 3: Administrative, Commercial and Protective Facilities category (see Table 12.3 in Appendix C: CI/SfB Classification of Building Types on page 311). Two of the projects were classified as supermarkets and/or hypermarkets (CI/SfB 344) and the remaining four were classified as offices (CI/SfB 320). The value of the projects ranged from just under £1.0 million to £6.2 million.

Of the construction-related organizations involved in the realization of the six case study building projects, twelve were eligible to participate in the study. At the time of conducting the investigation, one organization was in the process of being purchased by another company and was therefore excluded from the analysis. The sample of twelve construction-related organizations included one architectural design consultant, three structural engineering design consultants, one building services engineering design consultant, three construction cost consultants and four primary

construction contractors. The observed organizations had either a head-office or a regional-office within forty miles of Newcastle-upon-Tyne. The longest established organization had been operating within the north-eastern region of England for well over one-hundred years and the most recently established had been operating for just over five years.

The respondents, who were all white British males, included six architects, six structural engineers, two building services engineers, five quantity surveyors and four contract managers. Most of the respondents indicated that they were aged between forty to forty-nine years of age, the youngest being thirty to thirty-four years of age and the oldest being over sixty years of age. All of the respondents indicated that they had gained a post-sixteen qualification at HND level or above. Over 90% of respondents indicated that they had worked in the construction industry and for their present employer for over ten years, and that their gross salary was over £25,000 per annum. Three professional institutions dominated the respondents' occupational interests, viz. the RIBA, the ICE and the IStructE. Only one respondent indicated that he was not affiliated to a professional body or institution. In short, the respondents were a representative sample of the construction-related professionals found working in today's modern industry in the north-eastern region of England.

### 7.3 RESULTS OF STRUCTURAL EQUATION MODELLING ANALYSIS

Table 7.1 on page 217 is the truncated dataset of the independent and dependent factors or constructs for the current study (the full dataset of the factors and their measured variables is illustrated in Table 18.1 in Appendix I: Dataset of Factors and Measured Variables on page 344). As outlined in Section 6.3 Operationalization of Constructs, which commences on page 163, raw data were extracted from the semi-structured interview transcripts (see Appendix K: Building Project 1 (BLD01) Interview Transcripts to Appendix P: Building Project 6 (BLD06) Interview Transcripts, which commence on page 368) and the completed professional status evaluation questionnaires (see Appendix J: Professional Status Evaluation Questionnaire Sample on page 345) for processing and to compile the dataset.

**Table 7.1 Truncated Dataset of Inter-organizational Conflict Factors**

Building Project	Inter-organizational Dyad	CLIENT REPUTE	PROFESSIONAL SERVICES	OUTPUT SECTORS	POSITIONAL POWER	RELATIVE MATURITY	RELATIONAL FAMILIARITY	ORGANIZATIONAL REPUTE	PROFESSIONAL STATUS	INTERDEPENDENCE	STRUCTURAL CONFLICT	OPERATING CONFLICT
		F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	F <sub>4</sub>	F <sub>5</sub>	F <sub>6</sub>	F <sub>7</sub>	F <sub>8</sub>	F <sub>9</sub>	F <sub>10</sub>	F <sub>11</sub>
BLD01 (NBDSP)	BLD01-ORG03-REP01↔BLD01-ORG04-REP01	8.000	2.000	4.000	4.000	6.296	0.000	8.000	7.500	10.000	7.000	6.000
BLD01 (NBDSP)	BLD01-ORG03-REP01↔BLD01-ORG05-REP01	7.000	1.000	7.000	3.000	4.907	3.000	9.000	8.125	8.000	3.000	2.000
BLD01 (NBDSP)	BLD01-ORG04-REP01↔BLD01-ORG05-REP01	9.000	0.000	4.000	3.000	1.389	3.000	9.000	8.542	5.000	3.000	2.000
BLD01 (NBCSP)	BLD01-ORG03-REP01↔BLD01-ORG04-REP01	8.000	2.000	4.000	3.000	6.296	0.000	8.000	7.500	9.000	6.000	6.000
BLD01 (NBCSP)	BLD01-ORG03-REP01↔BLD01-ORG05-REP01	7.000	1.000	7.000	2.000	4.907	3.000	9.000	8.125	10.000	3.000	3.000
BLD01 (NBCSP)	BLD01-ORG04-REP01↔BLD01-ORG05-REP01	9.000	0.000	4.000	3.000	1.389	3.000	9.000	8.542	7.000	3.000	2.000
BLD02 (NBDSP)	BLD02-ORG03-REP01↔BLD02-ORG04-REP01	8.000	2.000	4.000	4.000	6.296	6.000	8.000	7.500	10.000	5.000	5.000
BLD02 (NBDSP)	BLD02-ORG03-REP01↔BLD02-ORG05-REP01	7.000	1.000	7.000	3.000	4.907	6.000	9.000	8.125	8.000	2.000	2.000
BLD02 (NBDSP)	BLD02-ORG04-REP01↔BLD02-ORG05-REP01	9.000	0.000	4.000	3.000	1.389	6.000	8.000	8.542	5.000	2.000	2.000
BLD02 (NBCSP)	BLD02-ORG03-REP01↔BLD02-ORG04-REP01	8.000	2.000	4.000	4.000	6.296	6.000	8.000	7.500	9.000	4.000	5.000
BLD02 (NBCSP)	BLD02-ORG03-REP01↔BLD02-ORG05-REP01	7.000	1.000	7.000	3.000	4.907	6.000	9.000	8.125	8.000	2.000	2.000
BLD02 (NBCSP)	BLD02-ORG04-REP01↔BLD02-ORG05-REP01	9.000	0.000	4.000	3.000	1.389	6.000	8.000	8.542	3.000	2.000	3.000
BLD03 (NBCSP)	BLD03-ORG05-REP01↔BLD03-ORG06-REP01	9.000	5.000	7.000	3.000	5.556	3.000	8.000	8.542	11.000	6.000	4.000
BLD03 (NBCSP)	BLD03-ORG05-REP01↔BLD03-ORG07-REP01	9.000	0.000	8.000	3.000	3.611	2.000	10.000	9.375	12.000	7.000	3.000
BLD03 (NBCSP)	BLD03-ORG06-REP01↔BLD03-ORG07-REP01	8.000	0.000	7.000	2.000	1.944	4.000	7.000	8.750	12.000	3.000	4.000
BLD04 (NBCSP)	BLD04-ORG02-REP01↔BLD04-ORG03-REP01	7.000	3.000	7.000	4.000	0.278	6.000	8.000	8.750	10.000	4.000	3.000
BLD04 (NBCSP)	BLD04-ORG02-REP01↔BLD04-ORG04-REP01	9.000	5.000	7.000	3.000	1.944	6.000	9.000	9.167	10.000	4.000	3.000
BLD04 (NBCSP)	BLD04-ORG02-REP01↔BLD04-ORG04-REP02	7.000	5.000	7.000	3.000	1.944	5.000	8.000	8.542	10.000	4.000	4.000
BLD04 (NBCSP)	BLD04-ORG02-REP01↔BLD04-ORG05-REP01	9.000	5.000	7.000	3.000	0.648	1.000	8.000	8.750	13.000	4.000	3.000
BLD04 (NBCSP)	BLD04-ORG03-REP01↔BLD04-ORG04-REP01	8.000	5.000	8.000	3.000	1.667	2.000	9.000	9.167	7.000	4.000	2.000
BLD04 (NBCSP)	BLD04-ORG03-REP01↔BLD04-ORG04-REP02	6.000	5.000	8.000	3.000	1.667	4.000	8.000	8.542	6.000	4.000	2.000
BLD04 (NBCSP)	BLD04-ORG03-REP01↔BLD04-ORG05-REP01	8.000	5.000	8.000	3.000	0.370	3.000	10.000	8.750	10.000	5.000	3.000
BLD04 (NBCSP)	BLD04-ORG04-REP01↔BLD04-ORG05-REP01	10.000	8.000	8.000	2.000	1.296	5.000	10.000	9.167	12.000	4.000	2.000
BLD04 (NBCSP)	BLD04-ORG04-REP02↔BLD04-ORG05-REP01	8.000	8.000	8.000	2.000	1.296	6.000	8.000	8.542	7.000	3.000	3.000
BLD05 (NBCSP)	BLD05-ORG02-REP01↔BLD05-ORG03-REP01	9.000	2.000	7.000	4.000	3.519	3.000	9.000	8.333	8.000	4.000	4.000
BLD05 (NBCSP)	BLD05-ORG02-REP01↔BLD05-ORG04-REP01	9.000	5.000	7.000	3.000	1.944	3.000	6.000	8.125	11.000	7.000	8.000
BLD05 (NBCSP)	BLD05-ORG02-REP01↔BLD05-ORG05-REP01	10.000	3.000	5.000	3.000	6.204	0.000	10.000	7.500	14.000	6.000	6.000
BLD05 (NBCSP)	BLD05-ORG03-REP01↔BLD05-ORG04-REP01	8.000	4.000	8.000	3.000	1.574	0.000	6.000	9.375	6.000	4.000	5.000
BLD05 (NBCSP)	BLD05-ORG03-REP01↔BLD05-ORG05-REP01	9.000	2.000	6.000	3.000	9.722	0.000	5.000	8.750	9.000	6.000	8.000
BLD05 (NBCSP)	BLD05-ORG04-REP01↔BLD05-ORG05-REP01	9.000	3.000	6.000	2.000	8.148	1.000	6.000	8.542	10.000	8.000	6.000
BLD06 (NBCSP)	BLD06-ORG02-REP01↔BLD06-ORG03-REP01	10.000	3.000	7.000	4.000	0.278	3.000	9.000	9.583	8.000	4.000	3.000
BLD06 (NBCSP)	BLD06-ORG02-REP01↔BLD06-ORG04-REP01	10.000	3.000	7.000	3.000	1.944	4.000	9.000	8.958	12.000	4.000	3.000
BLD06 (NBCSP)	BLD06-ORG02-REP01↔BLD06-ORG05-REP01	10.000	1.000	6.000	3.000	5.000	6.000	9.000	9.167	11.000	4.000	4.000
BLD06 (NBCSP)	BLD06-ORG02-REP01↔BLD06-ORG06-REP01	9.000	5.000	7.000	3.000	5.000	3.000	8.000	8.958	14.000	4.000	4.000
BLD06 (NBCSP)	BLD06-ORG03-REP01↔BLD06-ORG04-REP01	10.000	2.000	8.000	3.000	1.667	6.000	9.000	9.792	7.000	4.000	3.000
BLD06 (NBCSP)	BLD06-ORG03-REP01↔BLD06-ORG05-REP01	10.000	1.000	7.000	3.000	5.278	6.000	8.000	10.000	5.000	4.000	5.000
BLD06 (NBCSP)	BLD06-ORG03-REP01↔BLD06-ORG06-REP01	9.000	4.000	8.000	3.000	4.722	5.000	9.000	9.792	4.000	4.000	5.000
BLD06 (NBCSP)	BLD06-ORG04-REP01↔BLD06-ORG05-REP01	10.000	1.000	7.000	2.000	6.944	4.000	8.000	9.375	7.000	4.000	3.000
BLD06 (NBCSP)	BLD06-ORG04-REP01↔BLD06-ORG06-REP01	9.000	3.000	8.000	2.000	3.056	1.000	7.000	9.167	8.000	4.000	4.000
BLD06 (NBCSP)	BLD06-ORG05-REP01↔BLD06-ORG06-REP01	9.000	1.000	7.000	2.000	10.000	2.000	7.000	9.375	10.000	4.000	4.000
Maximum Value		10.000	8.000	8.000	4.000	10.000	6.000	10.000	10.000	14.000	8.000	8.000
Minimum Value		6.000	0.000	4.000	2.000	0.278	0.000	5.000	7.500	3.000	2.000	2.000
Arithmetic Mean		8.600	2.725	6.525	2.950	3.690	3.550	8.250	8.688	8.900	4.225	3.775
Standard Deviation		1.057	2.136	1.432	0.597	2.608	2.099	1.149	0.663	2.658	1.441	1.593

Using EQS version 5.7b<sup>1</sup>, the hypothesized relationships between the three dependent factors and the eight independent factors were examined. These were the factors derived from the literature that were considered to be influential upon the manifestation of social conflict (see Section 6.3 Operationalization of Constructs on page 163 for detailed information regarding the theoretical development of the eleven factors).

The full hypothesized structural equation model that was analysed with EQS is presented in Figure 7.1 on page 219. Following the conventions that are universally employed when creating structural equation modelling diagrams (see Section 6.4 Hypothesized Model on page 201), the ellipses in the diagram represent factors or constructs, the rectangles represent measured variables and the arrows with one head indicate hypothesized direct relationships between two variables, with the arrowhead pointing to the dependent variable.

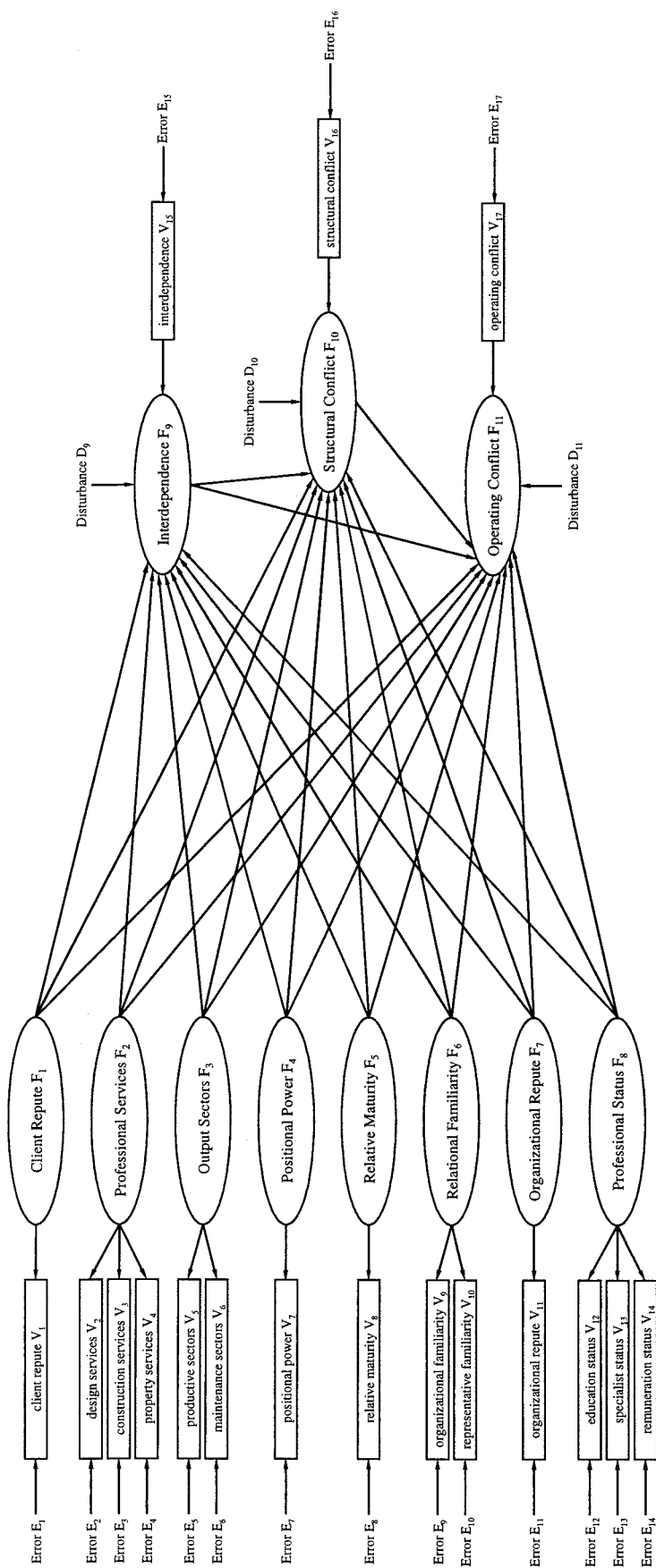
The three dependent factors included INTERDEPENDENCE (F<sub>9</sub>), STRUCTURAL CONFLICT (F<sub>10</sub>) and OPERATING CONFLICT (F<sub>11</sub>), each with their own measured variable, viz. *interdependence* (V<sub>15</sub>), *structural conflict* (V<sub>16</sub>) and *operating conflict* (V<sub>17</sub>). The eight independent factors included CLIENT REPUTE (F<sub>1</sub>), PROFESSIONAL SERVICES (F<sub>2</sub>), OUTPUT SECTORS (F<sub>3</sub>), POSITIONAL POWER (F<sub>4</sub>), RELATIVE MATURITY (F<sub>5</sub>), RELATIONAL FAMILIARITY (F<sub>6</sub>), ORGANIZATIONAL REPUTE (F<sub>7</sub>) and PROFESSIONAL STATUS (F<sub>8</sub>).

Considering each dependent factor in turn, CLIENT REPUTE (F<sub>1</sub>) had only one measured variable, viz. *client repete* (V<sub>1</sub>). PROFESSIONAL SERVICES (F<sub>2</sub>) had three measured variables, viz. *design services* (V<sub>2</sub>), *construction services* (V<sub>3</sub>) and *property services* (V<sub>4</sub>). OUTPUT SECTORS (F<sub>3</sub>) had two measured variables, viz.

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<sup>1</sup> The decision to use EQS version 5.7b as opposed to the many other structural equation modelling programs, such as LISREL, SAS CALIS and AMOS, was the result of research published by Ullman (2001). Ullman has stated that of all the full-service, multi-option structural equation modelling programs, EQS is the most user-friendly of them all. Among the many positive attributes of EQS, she indicates that the equation method of specifying the model is clear and easy to use and the output is well-organized. She also states that the computation routines used in EQS are much more efficient, too. Furthermore, in addition to the equation method of model specification, there are also options to specify the model through a diagram or with a Windows *point and click* method. (Ullman, 2001: 764)

**Figure 7.1** Path Diagram of a Hypothesized Structural Equation Model of Social Conflict in Construction-related Inter-organizational Collectivities in the North-eastern Region of England



*productive sectors* (V<sub>5</sub>) and *maintenance sectors* (V<sub>6</sub>). Both POSITIONAL POWER (F<sub>4</sub>) and RELATIVE MATURITY (F<sub>5</sub>) had one measured variable each, viz. *positional power* (V<sub>7</sub>) and *relative maturity* (V<sub>8</sub>) respectively. RELATIONAL FAMILIARITY (F<sub>6</sub>) had two measured variables, viz. *organizational familiarity* (V<sub>9</sub>) and *representative familiarity* (V<sub>10</sub>). ORGANIZATIONAL REPUTE (F<sub>7</sub>) had just the one measured variable, viz. *organizational repute* (V<sub>11</sub>). And PROFESSIONAL STATUS (F<sub>8</sub>) had three measured variables, viz. *education status* (V<sub>12</sub>), *specialist status* (V<sub>13</sub>) and *remuneration status* (V<sub>14</sub>).

Considering the number of factors and measured variables that are included within the hypothesized structural equation model, it could be argued that the truncated dataset displayed in Table 7.1 on page 217 is relatively small. It must be said, however, that the approach of using a relatively small dataset is not unusual for *exploratory path analysis*. According to Ullman (2001) and Hair *et al.* (1998), this is because the aim of exploratory path analysis is to define *possible* relationships in only the most general form and then to allow multivariate techniques to estimate correlations between factors. This is the opposite of *confirmatory path analysis*, which is concerned with statistically assessing a model's fit to the observed data. It must be stressed that this investigation was not attempting to *confirm* any relationships specified in the hypothesized *structural model*, but was attempting to *explore* and *define* the nature of the relationships that exist between the factors, accepting that there are limitations with the observed data. The results of this *exploratory path analysis* may not be generalizable to the population but can be used to *explain* patterns of relationships that appear to *fit* the context of the study and its observed data.

During structural equation modelling, the dataset is regarded as an empirical covariance matrix and the structural model produces an estimated population covariance matrix. The extent to which the structural model produces an estimated population covariance matrix that is consistent with the sample covariance matrix is the fundamental statistical procedure of structural equation modelling. In other words, structural equation modelling assesses the *adequacy* of the hypothesized model in relation to the observed data.

At the outset, structural equation modelling simultaneously estimates values for all of the parameters in order to create an estimated population covariance matrix. If the structural model proves to be good, the parameter estimates will produce an estimated matrix that is *close* to the sample covariance matrix. Ultimately, this will result in a good fit being achieved between the structural model and the observed data. *Goodness-of-fit* is normally measured with the chi-squared test statistic or one of its derivatives.

The primary goal in structural equation modelling is therefore the development of a parsimonious<sup>1</sup> model with unimportant parameters deleted. Post hoc modifications to the structural model are therefore performed in an attempt to create a better fitting, more parsimonious model during the analysis.

Following the principles of the Lagrange multiplier test<sup>2</sup>, the Wald test<sup>3</sup> and the theoretical relevance, a number of paths or causal relationships can be added and/or deleted during modelling. A record of the model modification procedure for the current study is described in Appendix Q: SEM Modification Procedure on page 685, with the unedited syntax and complete EQS output for the final model being presented in Appendix R: EQS SEM Output File Printout on page 689. The modification procedure followed the basic principles outlined by Ullman (2001), which included an examination of the model in terms of its multi-variate fit and its theoretical relevance, the intention being to delete causal relationships with very low probabilities of occurrence and to include recommended causal relationships with

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<sup>1</sup> Parsimony is the degree to which a model achieves *goodness-of-fit* for each estimated coefficient. The objective is not to minimize the number of coefficients or to maximize the fit, but to maximize the amount of fit per estimated coefficient and avoid *over-fitting* the model with additional coefficients that achieve only small gains in model fit. (Hair *et al.*, 1998: 582)

<sup>2</sup> The Lagrange Multiplier test (LM) compares nested models but requires estimation of only one model. The LM test asks if the model is improved if one or more of the parameters in the model that are currently fixed are estimated. Or, equivalently, what parameters should be added to the model to improve the fit? This method of model modification is analogous to forward stepwise regression. (Ullman, 2001: 703)

<sup>3</sup> While the LM test asks which parameters, if any, should be added to a model, the Wald test asks which, if any, could be deleted. Are there any parameters that are currently being estimated that could, instead, be fixed to zero? Or, equivalently, which parameters are not necessary in the model? The Wald test is analogous to backward deletion of variables in stepwise regression where one seeks a non-significant change in the equation when variables are left out. (Ullman, 2001: 713)



strong probabilities of occurrence. The final structural equation model with standardized parameter estimates is shown in Figure 7.2 on page 223. It includes the key variables which significantly influence inter-organizational relationships and the emergence of dysfunctional social conflict.

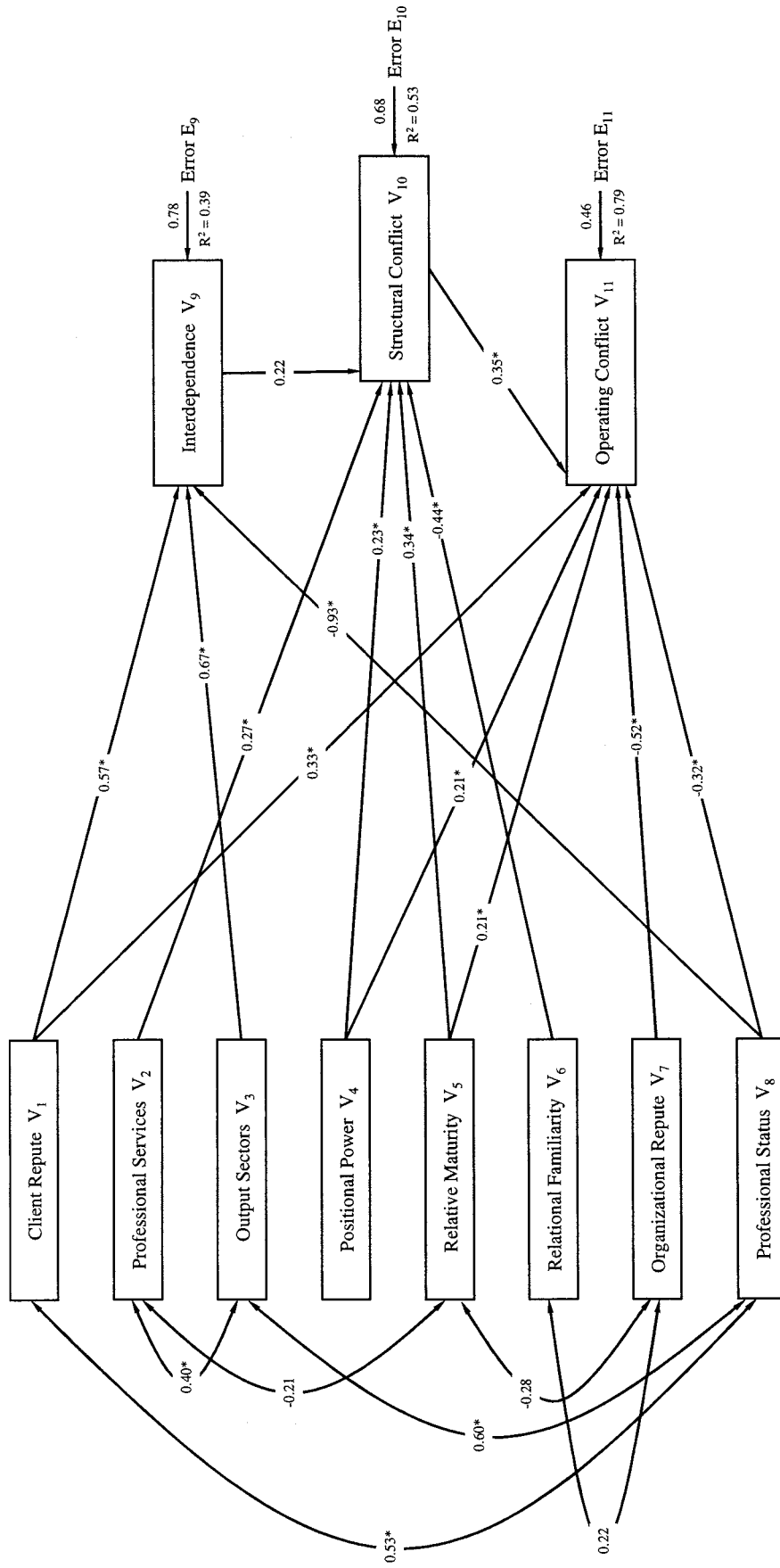
As discussed above, the tenet of structural equation modelling is the assessment of the similarity or *closeness* of the empirical covariance matrix and the estimated population matrix. Structural equation modelling bases this assessment on goodness-of-fit indicators. Ideally, the normative goodness-of-fit measures should be as close to 1.000 as possible. The indices for this study's final model are as follows:

1.	Bentler-Bonett Normed Fit Index	=	0.889
2.	Bentler Bonett Non-normed Fit Index	=	1.058
3.	Comparative Fit Index (CFI)	=	1.000

In general, then, this is a very good set of indices. They indicate that the estimated population covariance matrix generated by the hypothesized model is most consistent with the sample covariance matrix. In other words, the structural equation model would appear to just about fit the observed data perfectly. This result also confirms the appropriateness and reliability of the structural model's constructs and theories to accurately reflect the nature of the antecedent factors which influence the emergence of social conflict within the construction-related inter-organizational collectivities operating in the north-eastern region of England.

In the path diagram of the final structural equation model in Figure 7.2, the strength of the correlation between two factors is expressed by a significant coefficient in standardized form (non-significant coefficients have been omitted to maximize clarity). The closer the coefficient is to  $\pm 1.00$ , the stronger the relationship between the factors. The polarity of the standardized significant coefficient describes the nature of the relationship between two factors. Negative polarity indicates an inverse correlation, whereas positive polarity indicates a direct correlation. Specific parameters and interesting patterns of relationships between the independent and dependent factors that have been identified following the structural equation

**Figure 7.2** Path Diagram for the Final Structural Equation Model of Social Conflict in Construction-related Inter-organizational Collectivities in the North-eastern Region of England



modelling procedure using EQS will now be outlined. It must be emphasized that it is highly unlikely that these correlations have occurred merely by chance.

When examining the results of the structural equation modelling exercise from a general and fairly broad perspective, a number of interesting patterns of relationships between the independent and dependent constructs are clearly apparent. The most striking observation is that the three dependent factors, i.e.  $F_9$ ,  $F_{10}$  and  $F_{11}$ , as originally hypothesized, are influenced by the eight independent factors, i.e.  $F_1$  through to  $F_8$ . The extent to which the predicted variables are determined by the source variables is consistent with one of the study's main expectations, viz. OPERATING CONFLICT ( $F_{11}$ ) is the dependent variable influenced by the most factors. The results of the investigation indicate that five independent and one moderating factors motivated the emergence of operating conflict between the related organizations. Also, the magnitude of the STRUCTURAL CONFLICT ( $F_{10}$ ) variable was determined by four independent factors and one moderating factor; whereas INTERDEPENDENCE ( $F_9$ ) was the dependent variable least affected by independent factors, with a total of three predictors influencing its occurrence within the inter-organizational dyads.

Each independent factor did appear to positively or negatively influence either one or two dependent factors. Obvious patterns of relationships among the constructs were not evident. Inspection of the value and nature of the associations between the two types of factors reveals several important points of interest. Firstly, more positive than negative correlations existed among the variables with a ratio of 2:1. Secondly, the range of values of the standardized coefficients for the negatively correlated factors was much bigger than the range of values of the standardized coefficients for the positively correlated factors. In addition, the largest value of the standardized coefficient for a negative association was -0.93, whereas the largest value of the standardized coefficient for a positive association was 0.67. Similarly, the lowest value of the standardized coefficient for a negative correlation was -0.32, whereas the lowest value of the standardized coefficient for a positive correlation was 0.21. In short, the results of the investigation suggest that the negatively correlated independent factors had a greater impact upon their dependents than their positively

correlated counterparts did, and that more of the independent factors were positively correlated to their dependent factors than negatively correlated.

The path diagram illustrated in Figure 7.2 on page 223 also indicates that significant relationships exist within the data. For instance, the CLIENT REPUTE ( $F_1$ ) factor and the OUTPUT SECTORS ( $F_3$ ) factor would appear to be strong positive predictors of INTERDEPENDENCE ( $F_9$ ) (standardized coefficients of 0.57 and 0.67 respectively), whereas the PROFESSIONAL STATUS ( $F_8$ ) factor would seem to be a strong negative predictor (standardized coefficient = -0.93). These results indicate that organizations which jointly held their mutual client in high regard, while providing professional services within the same problem areas, tended to become interdependent. Client reputation would seem to encourage mutual exchanges and commitments between organizations on a continuing basis; promoting the interacting organizations to surrender absolute control of essential resources and invoking social conflict. However, because of apparent trade-off benefits and conservation of effort attained by the interdependent organizations when directing their attention to common substantive concerns for the sake of their mutual, highly-regarded client, social conflict between the organizations appeared to be mild to moderate. A similar finding was reported by Molnar and Rogers (1979) following their comparative study of social conflict between environmental service agencies in the USA.

STRUCTURAL CONFLICT ( $F_{10}$ ) would appear to moderately increase as RELATIVE MATURITY ( $F_5$ ) increases (standardized coefficient = 0.34), but would seem to decrease as RELATIONAL FAMILIARITY ( $F_6$ ) increases (standardized coefficient = -0.44). Inter-organizational exchange relationships characterized by organizations that were established at quite different periods tended to experience more social conflict at the structural level. Organizations with an increased relative age difference were more likely to report disparities in the structure of their social relationship, but as Molnar and Rogers have stated, have greater incentives in terms of resources invested in the relationship to resolve the social conflicts that do occur. Additionally, conflict between organizations was significantly reduced when the organizations and their representatives had gained meaningful prior work-related experience of each other. This was because the inter-related organizations and role

representatives were much more aware of the traits and working practices of their counterparts, and were therefore more able to accommodate any unexpected issues.

The ORGANIZATIONAL REPUTE ( $F_7$ ) and PROFESSIONAL STATUS ( $F_8$ ) factors would seem to negatively influence the OPERATING CONFLICT ( $F_{11}$ ) factor (standardized coefficients of -0.52 and -0.32 respectively). Inter-organizational conflict at the operational level is minimized when interacting organizations and their representatives possess the ability to engender project-related confidence during their relationship. Inter-organizational co-operation therefore significantly increases when the independent goals and reputation of the resource-dependent organizations united at an interface are complementary as opposed to being indistinguishable or diverse.

In addition, the OPERATING CONFLICT ( $F_{11}$ ) factor is directly moderated by the STRUCTURAL CONFLICT ( $F_{10}$ ) factor (standardized coefficient = 0.35), which in turn is directly moderated by the INTERDEPENDENCE ( $F_9$ ) factor (standardized coefficient = 0.22). The existence of conflicting roles and responsibilities between the interdependent organizations and their representatives was a moderate source of disagreements and disputes between the parties united at the inter-organizational interface. A large proportion of this conflict could be attributed to discontinuities in the mutual structures of project-related activities that defined the context for the interaction between organizations. This finding was also attained by Molnar and Rogers in 1979.

EQS has also identified a number of interesting correlations or covariance structures among certain independent factors in the model which were not anticipated. These include the strong positive relationship between the PROFESSIONAL STATUS ( $F_8$ ) factor and the CLIENT REPUTE ( $F_1$ ) factor (standardized coefficient = 0.53) and also the OUTPUT SECTORS ( $F_3$ ) factor (standardized coefficient = 0.60). The PROFESSIONAL SERVICES ( $F_2$ ) factor and the OUTPUT SECTORS ( $F_3$ ) factor would also seem to be positively related (standardized coefficient = 0.40). These unexpected findings present opportunities for future research to be undertaken to identify the inter-relationships that exist between the independent factors, their impact upon the dependent factors and their influence upon the emergence of social

conflict between organizations. At present, such an analysis lies beyond the scope of the current Ph.D. investigation, and will therefore be temporarily put to one side.

Evidently, the results of the structural equation modelling exercise have shown that the independent constructs are powerful predictors of interdependence, structural conflict and operating conflict between construction-related organizations united at an inter-organizational interface in the north-eastern region of England. Essentially, the fully-revised model offers an empirical explanation for the occurrence of social conflict in construction-related inter-organizational collectivities. Although the revised model (see Figure 7.2 on page 223) appears somewhat modified from the hypothesized model (see Figure 7.1 on page 219), much of the theoretical rationale remains unchanged. Furthermore, bearing in mind the social science context of this investigation, it is most unusual to attain values for  $R^2$ <sup>1</sup> of more than 25%. The  $R^2$  value for each of the predicted constructs is therefore extremely high. Consequently, this provides firm evidence that the revised model is indeed an excellent predictor of social conflict among organizations, as the proportion of variance unaccounted for within the dependent constructs is extremely low for a study of this nature. The final structural equations for the revised model are as follows:

$$F_9 = 0.574F_1 + 0.674F_3 - 0.927F_8 + 0.778E_9 \quad (R^2 = 0.394)$$

$$F_{10} = 0.223F_9 + 0.268F_2 + 0.235F_4 + 0.342F_5 - 0.445F_6 + 0.682E_{10} \quad (R^2 = 0.534)$$

$$F_{11} = 0.352F_{10} + 0.329F_1 + 0.207F_4 + 0.209F_5 - 0.521F_7 - 0.321F_8 + 0.461E_{11} \quad (R^2 = 0.788)$$

#### 7.4 RESULTS OF EXPLORATORY CASE STUDY ANALYSES

The case study is one of several useful strategies for undertaking social science research. It has been used extensively in many different situations in order to contribute to our appreciation and knowledge of the individual, group, organization and nation. In whichever context it is utilized, e.g. psychology, sociology, political

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<sup>1</sup>  $R^2$  (r-squared) is the symbol for a coefficient of determination between two variables. It tells you how much of the variability of the dependent variable is explained by (or accounted for, associated with, or predicted by) the independent variable. (Vogt, 1999: 232)

science, social work and business, the distinctive need for case studies arises from the researcher's desire to gain a clearer understanding of social phenomena. In Yin's view:

... the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, organizational and managerial processes, neighbourhood change, international relations, and the maturation of industries.

(Yin, 2003: 2)

The main advantages and disadvantages of the case study research strategy are dependent upon three context-specific conditions which have been outlined by Yin. These conditions include the nature of the research question, the control a researcher has over the actual behavioural events and the focus on contemporary as opposed to historical phenomena (Yin, 2003). Furthermore, according to Yin, in all but a very few cases, case studies appear to be the most appropriate strategy for *how* and *why* research questions, when the researcher has very little control over the behavioural events being investigated and when the focus of investigation is on a contemporary phenomenon within some real-life context.

Three different yet closely-related categories of case study strategy have been discussed by Yin as being available to the social scientist, viz. explanatory, exploratory and descriptive case studies. Of these three categories, the exploratory approach appears to be the most difficult and frequently challenged within the academic community at large (Yin, 1993).

As the intention of the present study was to investigate *how* the exogenous and endogenous factors of construction-related organizations influence the manifestation of social conflict at the inter-organizational level during and between the building design and construction sub-processes, according to Yin's beliefs, the application of exploratory case study analysis would appear to be the most appropriate for the intended field of investigation. In other words, Yin's three case study selection criteria appear to fit the aim and context of the present exploratory study.

The sample of six purposive case study building projects that were selected for analysis were chosen because of their apparent ability to illustrate intriguing issues and behaviours associated with the social, real-life phenomenon to be investigated. The six case study buildings were not intended to be part of a cross-case sectional sample. Instead, they were intended to be viewed as context-specific task-orientated environments from which social conflict among and between organizations could be identified and investigated. From such a standpoint, the aggregate evidence of an analysis involving six case studies is extremely beneficial as it can meaningfully contribute towards the development of a theoretical comparative model of social conflict for the UK construction industry by helping to validate its specification. Furthermore, there is no evidence to suggest that the case studies were not representative of the building projects that are usually procured within the north-eastern region of England.

Data were collected by semi-structured in-depth interviews with twenty-three boundary role representatives of the twelve construction-related organizations involved in the design and fabrication of the observed six case study building projects. The interviews were audio-recorded, transcribed, verified and coded for anonymity in accordance with the method outlined in Section 6.6 Data Collection and Analysis on page 208. The set or collection of transcribed semi-structured interviews for each of the six observed case study building projects can be found in Appendix K: Building Project 1 (BLD01) Interview Transcripts through to Appendix P: Building Project 6 (BLD06) Interview Transcripts, which start on page 368 of this thesis.

*Within-case* content analysis, which has been acknowledged by Silverman (2001) as an accepted method of textual investigation, was used during this study to explore ideas regarding the explanation of social conflict between the construction-related organizations involved in the design and construction sub-processes of the observed building projects. It was also used to identify and outline views expressed by the respondents regarding the antecedent conditions of inter-organizational conflict, thus helping to confirm the theoretical specification of the hypothesized structural equation model that was previously analysed with EQS (see Section 7.3 Results of Structural Equation Modelling Analysis on page 216 for additional information about



the analysis of the hypothesized structural equation model that is illustrated in Figure 6.2 on page 203).

Kaplan (1964) has categorized the types of scientific explanation available to qualitative researchers intending to interpret textual data, citing what he terms *purposive* explanations, which either depend upon individual goals or motives or serve some detailed functions, to *historical* or *retrospective* explanations, which make sense of a series of inter-related events. Given that the central intention of this Ph.D. research project is to develop a meaningful understanding of the extent to which comparative organizational variables influence the occurrence of ineffective construction-related inter-organizational relationships (CIORs), the second of Kaplan's two approaches was adopted during the analysis of the textual data.

Consequently, following a detailed examination of the semi-structured interview transcripts, project-specific *case dynamics matrices*, which display the set or network of forces for mapping the causal origins of social conflict within the construction-related inter-organizational collectivities, were formulated for each observed building project. Miles and Huberman's (1994) methodology for constructing the matrices of within-case dynamics was followed during the investigation and content analysis of the extracted textual data. In addition to displaying, in a preliminary manner, the explanations that seem relevant to the causation of inter-organizational conflict, the case dynamics matrices were used to trace the consequential processes and outcomes of the isolated conflict episode(s).

During the process of constructing the within-case dynamics matrices, three key themes concerning the manifestation of social conflict became very apparent. The key themes were emphasized repeatedly, often with extreme vociferousness, by some of the study's respondents while recalling past experiences, both in terms of reported frequency and the respondents' strength of feeling towards the theme(s). Selected extracts from these transcripts will now be used to explore and highlight each of the three key themes in relation to the task environment of their appropriate case study. Each theme will be introduced and underpinned with supporting theories from earlier chapters. This will then be followed by a detailed discussion of the theme in relation to its setting, including an explanation of the issues surrounding the theme. The

theme will then be analysed using confirmatory evidence derived from the interview transcripts. Assertions will be presented regarding the theme and its correlation to social conflict. Finally, a summary of the theme's relationship to existing or new knowledge will be explained.

At this point, it is important to note that the qualitatively-derived themes from the case study interviews appear to be representative of the same dimensions reported during the structural equation modelling exercise that was discussed in Section 7.3 Results of Structural Equation Modelling Analysis, which starts on page 216.

#### **7.4.1 Theme 1: Power and Authority**

The first theme that was identified within the case studies is the potential ability an organization possesses to increase its level of relative power and authority. In Section 6.3.7 POSITIONAL POWER (F<sub>4</sub>) on page 182, it was explained that organizational power (or positional power) is an organization's ability to determine the form of the interaction and the ratio of the exchange between two or more organizations. Organizations with a power advantage in an exchange relation will therefore tend to exploit the situation to alter the exchange ratio in order to make it more favourable to them. This situation can lead to the emergence of social conflict within an inter-organizational network. Hence, positional power is hypothesized to be directly correlated to both forms of inter-organizational conflict, viz. structural and operating conflict.

For example, the task environment that forms a suitable setting for this analysis is observed building project BLD05. The transcripts for BLD05 include several examples of situations where one particular organization, the contractor (BLD05-ORG05), repeatedly demonstrated its ability to increase its level of organizational power relative to its associates. This resulted in many instances of social conflict arising within and between the other organizations located within the collectivity. It is therefore argued that Theme 1: Power and Authority is exactly the same construct as the POSITIONAL POWER (F<sub>4</sub>) factor reported in Section 7.3 Results of Structural Equation Modelling Analysis, which starts on page 216 of this chapter.

The transcripts of the interviews with the boundary role representatives involved with the design and construction of BLD05 can be found in Appendix O: Building Project 5 (BLD05) Interview Transcripts on page 565. Following the procedure outlined Section 6.6 Data Collection and Analysis on page 208, BLD05's observed organizations and representatives were allocated the following identification codes in order to establish and maintain their anonymity. These identification codes are summarized in Table 7.2 immediately below.

**Table 7.2 Building Project 5 (BLD05) Coding Framework**

Identification Code	Observed Building Project and Participants
BLD05	Building project 5
BLD05-PAR01	Parent organization of BLD05-ORG01 & BLD05-ORG05
BLD05-ORG01	Commercial property developer
BLD05-ORG01-REP01	Boundary role representative of BLD05-ORG01
BLD05-ORG02	Architectural design consultant
BLD05-ORG02-REP01	Boundary role representative of BLD05-ORG02
BLD05-ORG03	Construction cost consultant
BLD05-ORG03-REP01	Boundary role representative of BLD05-ORG03
BLD05-ORG04	Structural engineering design consultant
BLD05-ORG04-REP01	Boundary role representative of BLD05-ORG04
BLD05-ORG05	Primary construction contractor
BLD05-ORG05-REP01	Boundary role representative of BLD05-ORG05

#### 7.4.1.1 Building Project Profile (BLD05)

BLD05 involved the construction of commercial and lightweight industrial units on a twenty-nine-acre plot of derelict land on the outskirts of a city centre in the north-eastern region of England. BLD05 was the first phase of a two phase speculative, new-build redevelopment scheme. Both phases of the scheme were of equal size and financial value. The estimated value of the first phase was £6.3 million.

The plot of land onto which BLD05 was to be constructed was adjacent to an area which had experienced significant and successful redevelopment over recent years.

It lay within an enterprise zone and was to directly benefit from redevelopment-associated government funding which was administrated by a local quango.

Originally, the plot of land was reclaimed from an adjacent river to accommodate buildings associated with the manufacture of steel. With the decline of the steel manufacturing industry during the 1980s, the plot of land and its associated buildings lay dormant for many years. As a result of its past use, the plot of land was heavily contaminated. It also required significant groundwork to be completed in order to prevent any future development from subsiding.

The parent company (BLD05-PAR01) of the property developer (BLD05-ORG01) and the contractor (BLD05-ORG05) had acquired the plot of land following the purchase of a financially-stricken company. The plot of land had been in the possession of the parent company (BLD05-PAR01) for between eighty and ninety years before an instruction was issued to the architectural design practice (BLD05-ORG02) and the structural design practice (BLD05-ORG04) to commence work on BLD05's conceptual design scheme. At the same time the instruction was issued to the design consultants, the professional quantity surveying practice (BLD05-ORG03) was requested to monitor the construction costs of BLD05's evolving design.

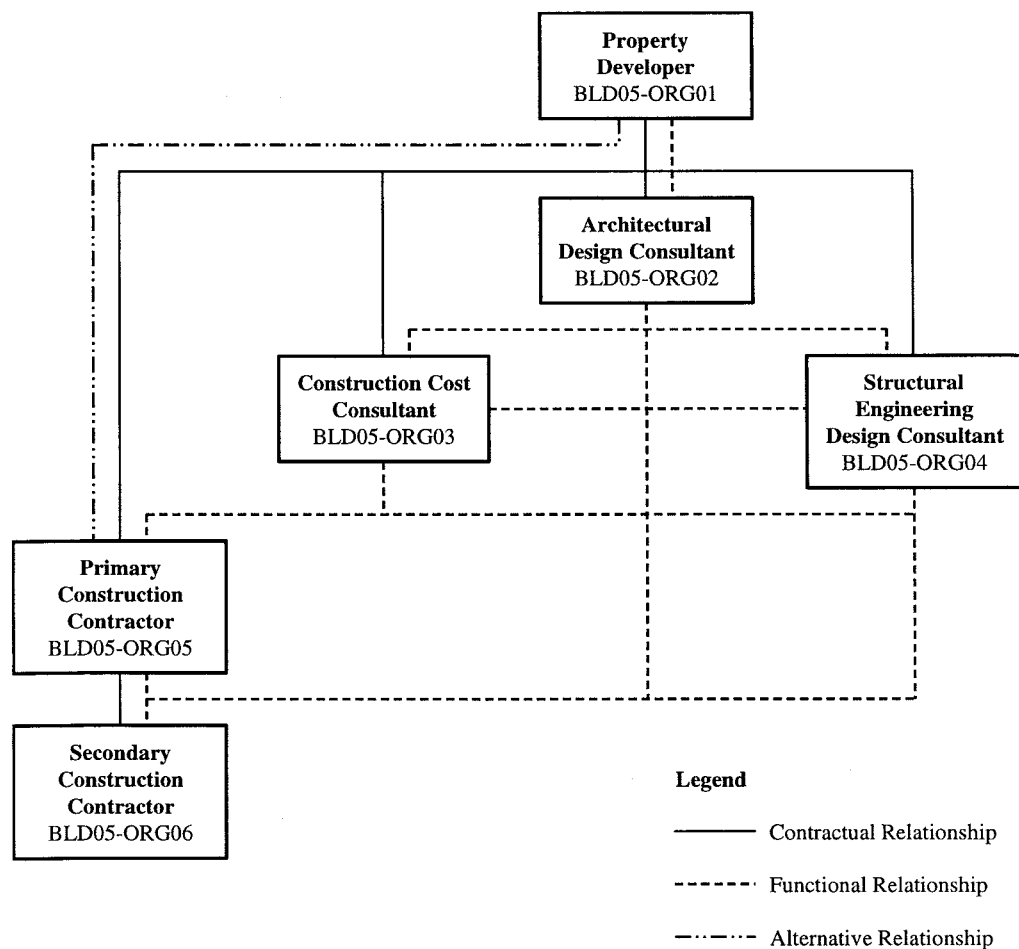
The property developer (BLD05-ORG01) did not establish a detailed design brief with the design team. Instead, BLD05 was designed and constructed using an outline specification document. The form of contract specified by the developer (BLD05-ORG01) for the procurement of BLD05 was the Joint Contracts Tribunal (JCT) Standard Form of Building Contract 1980 Edition (Private with Approximate Quantities).

#### *7.4.1.2 Organizational Profiles (BLD05)*

Figure 7.3 on page 234 illustrates the network of inter-organizational relationships that existed between the construction-related organizations that were involved with the new-build construction sub-process of BLD05. This network of relationships was fairly typical for a building procured with the Joint Contracts Tribunal (JCT)

Standard Form of Building Contract 1980 Edition (Private with Approximate Quantities). Using Masterman's (1992) framework for simplifying and visually presenting the contractual, functional and alternative relationships between construction-related organizations, which was briefly outlined in Section 6.3.7 POSITIONAL POWER ( $F_4$ ) on page 182, Figure 7.3 illustrates the different categories of inter-organizational relationships that existed during the new-build construction sub-process for BLD05.

**Figure 7.3 Inter-organizational Relationships during Building Project 5 New-build Construction Sub-process (BLD05-NBCSP)**



One of the inter-organizational relationships that existed during the realization of BLD05 was untypical of the selected JCT 80 traditional general contract. This was the alternative relationship that existed between the developer (BLD05-ORG01) and the contractor (BLD05-ORG05): an *intra*-organizational-type relationship that existed because the developer (BLD05-ORG01) and contractor (BLD05-ORG05)

were sister companies owned by the parent company (BLD05-PAR01), who held the title deeds for the plot of land onto which BLD05 was to be constructed.

Although the developer (BLD05-ORG01) had gained experience of procuring buildings in the Midlands and the south of England, BLD05 was the first project to be undertaken by the developer (BLD05-ORG01) in the north-eastern region of England. The developer (BLD05-ORG01) did not possess experience of working with any of the organizations involved in the design and construction of BLD05, e.g. the architectural design practice (BLD05-ORG02), the quantity surveying practice (BLD05-ORG03), the structural design practice (BLD05-ORG04) and the contractor (BLD05-ORG05).

BLD05-ORG02 was a well-established architectural design practice with over seventy years of work-related experience in the north-eastern region of England. The practice was invited to participate in the design of BLD05 as a result of a former *inter*-personal relationship between one of its partners and one of the directors of the developer (BLD05-ORG01). As previously stated, the architectural design practice (BLD05-ORG02) did not possess any experience of working with the developer (BLD05-ORG01). However, it had gained limited experience of working with the quantity surveying practice (BLD05-ORG03) and the structural design practice (BLD05-ORG04), but did not possess experience of working with the contractor (BLD05-ORG05).

During the course of designing BLD05, the boundary role representative of the architectural design practice (BLD05-ORG02), i.e. the architect, changed prior to construction work commencing. The architect (BLD05-ORG02-REP01), who inevitably became the administrator or employer's agent responsible for supervising the carrying out of building works under the terms and conditions of the contract, was unfamiliar with all of the organizations and boundary role persons involved in the design and construction of BLD05. Most surprisingly, this change did not appear to cause any real problems between participants regarding social conflict.

The quantity surveying practice (BLD05-ORG03) was also a well-established company with over one-hundred years of serving construction clients in the north-

eastern region of England. The quantity surveying practice (BLD05-ORG03) was required to undertake a strategic role during the procurement of BLD05, which involved monitoring construction costs and providing procurement advice to the developer (BLD05-ORG01). In a similar manner to the architectural design practice (BLD05-ORG02), the quantity surveying practice (BLD05-ORG03) decided to change its boundary role representative, i.e. the quantity surveyor, during the course of completing BLD05, but this time during the construction sub-process. Once again, this event did not appear to initiate any problems associated with social conflict between the organizations involved in the design and construction of BLD05.

The regional office of the quantity surveying practice (BLD05-ORG03) did not possess any experience of working with the developer (BLD05-ORG01), but did report that other regional offices within its national structure had gained prior experience of working with the developer (BLD05-ORG01). When asked if it was standard practice to exchange information between regional offices about clients, the quantity surveyor (BLD05-ORG03-REP01) indicated that it was not. Furthermore, the quantity surveyor (BLD05-ORG03-REP01) also reported that his practice (BLD05-ORG03) had gained very little experience of working with the architectural design practice (BLD05-ORG02), the structural design practice (BLD05-ORG04) and the contractor (BLD05-ORG05). In essence, both the professional quantity surveying practice (BLD05-ORG03) and the quantity surveyor (BLD05-ORG03-REP01) were unfamiliar with the other organizations and boundary representatives of the construction project organization.

In a similar manner to the architectural design practice (BLD05-ORG02), the quantity surveying practice (BLD05-ORG03) was invited to participate in the procurement of BLD05 by virtue of a former *inter*-personal relationship between two company directors. The quantity surveyor (BLD05-ORG03-REP01) reported that one of the partners in his company's Nottingham office had been approached by one of the directors of the developer (BLD05-ORG01) and invited to become the construction cost consultant for BLD05.

The structural design practice (BLD05-ORG04) was founded just after the turn of the last century and consequently had a great deal of experience working in the north-eastern region of England. It was introduced to the developer (BLD05-ORG01) following a recommendation made by one of the partners of the architectural design practice (BLD05-ORG02), and subsequently invited to participate in the design and construction sub-processes of BLD05. Throughout the project, the structural design practice (BLD05-ORG04) was responsible for designing all structural elements of BLD05, including the sub- and super-structure engineering designs. In addition to this area of responsibility, the structural design practice (BLD05-ORG04) acted as the infrastructure and environmental engineering design consultant. Unlike the other boundary role representatives of the professional consultants, the structural engineer (BLD05-ORG04-REP01) remained unchanged throughout the duration of BLD05's design and construction.

The structural design practice (BLD05-ORG04) had worked with the architectural design practice (BLD05-ORG02) on a couple of occasions, but the structural engineer (BLD05-ORG04-REP01) reported that he did not possess any experience of working with the architectural design practice (BLD05-ORG02) himself. When asked about previous work experience with the quantity surveying practice (BLD05-ORG03) and the contractor (BLD05-ORG05), the structural engineer (BLD05-ORG04-REP01) said that neither he nor his regional office (BLD05-ORG04) had gained any such experience.

The contractor (BLD05-ORG05) was expected to participate in the construction of BLD05 by virtue of its *intra*-organizational-type relationship with its sister company the developer (BLD05-ORG01). The contractor (BLD05-ORG05) was a company that was not well-known in the north-eastern region of England at the time BLD05 was being constructed. This was because its regional office had only been established for around five years. Contractually, the contractor (BLD05-ORG05) was required to undertake all of the roles and responsibilities of the primary construction contractor as outlined in the JCT 80 form of contract. As a result of the contractor's (BLD05-ORG05) *intra*-organizational-type relationship with the developer (BLD05-ORG01), its role and responsibilities changed. The parent company (BLD05-PAR01) required the contractor (BLD05-ORG05) to undertake



the construction of BLD05 on a guaranteed maximum price basis, which was not usual practice under the form of contract used during the construction of BLD05. The contractor (BLD05-ORG05) did not have any experience of working with any of the other organizations or boundary role representatives involved in the design and construction of BLD05.

#### 7.4.1.3 *Building Project Narrative (BLD05)*

The network of inter-organizational relationships that existed between the various construction-related organizations during the design and construction sub-processes of BLD05 was relatively new. Despite the fact that the professional consultants, i.e. the architectural design practice (BLD05-ORG02), the quantity surveying practice (BLD05-ORG03) and the structural design practice (BLD05-ORG04), were generally mature and experienced organizations with many years of providing professional services to clients in the north-eastern region of England, they had very little experience of working with each other on similar building projects. Also, the boundary role representatives of these organizations, i.e. the architect (BLD05-ORG02-REP01), the quantity surveyor (BLD05-ORG03-REP01) and the structural engineer (BLD05-ORG04-REP01), possessed no experience of working with each other.

The contractor (BLD05-ORG05) was a relatively new and inexperienced company and as such had very little history of providing professional services to clients in the north-eastern region of England. Because of its closeness to the developer (BLD05-ORG01), the contractor (BLD05-ORG05) was in a privileged position to secure the award of the JCT 80 form of contract to co-ordinate the construction of BLD05. Once the contract was awarded to the contractor (BLD05-ORG05), it was expected to engage with the terms and conditions of the general form of contract and to work with the professional consultants appointed to co-ordinate and monitor BLD05's design and construction cost. This placed the contractor (BLD05-ORG05), a contemporary and generally inexperienced organization, within a new network or inter-organizational collectivity which was comprised of mature and experienced construction-related organizations.

The degree of relational familiarity among the network of organizations involved in the design and construction sub-processes of BLD05 was generally very low, both at the representative and organizational level. This factor, together with the unusual *intra*-organizational-type relationship that existed between the developer (BLD05-ORG01) and the contractor (BLD05-ORG05), resulted in the emergence of operating conflict between the remaining construction-related organizations at the operational level.

The role and responsibilities of the primary contractor (BLD05-ORG05) changed significantly because of its *intra*-organizational-type relationship with the developer (BLD05-ORG01). In essence, the contractor (BLD05-ORG05) operated outside its clearly defined area of responsibility as detailed in the JCT 80 form of construction contract, which caused immense operational difficulties and social conflict for the other organizations within the collectivity. This situation is highlighted by the following statement made by the quantity surveyor (BLD05-ORG03-REP01):

I think that if there is a criticism of the arrangement, it is that BLD05-ORG02 and ourselves allowed them [BLD05-ORG05] to assume this elevated position that I explained before, rather than keeping the clear lines in [*sic*] the contract in place.

From this statement and others, it clear that the professional design and cost consultants involved in the construction of BLD05, i.e. the architectural design practice (BLD05-ORG02), the quantity surveying practice (BLD05-ORG03) and the structural design practice (BLD05-ORG04), allowed the inexperienced and immature primary contractor (BLD05-ORG05) to increase its organizational power by virtue of its *intra*-organizational-type relationship with the developer (BLD05-ORG01); albeit the professional design and construction cost consultants were experienced, mature organizations. This resulted in social conflict arising at the operational and structural levels between the organizations in the collectivity during the realization of BLD05.

By raising its level of organizational or positional power from what would have normally been expected under a JCT 80 form of contract, the contractor (BLD05-ORG05) was able to directly influence many aspects of the design and construction

sub-processes and working practices of the construction-related organizations in a manner that it should not have been able to accomplish. For instance, as previously discussed above, throughout the construction sub-process of BLD05, the architect (BLD05-ORG02-REP01) was required to fulfil the role and responsibilities of the administrator under the JCT 80 form of contract. This aspect of the architect's (BLD05-ORG02-REP01) role was extremely difficult as a result of the contractor's (BLD05-ORG05) increased level of organizational power. In many instances this lead to *inter*-personal conflict arising between the two boundary role representatives. When questioned about the extent to which the developer (BLD05-ORG01) was aware that the contractor (BLD05-ORG05) was trying to reduce the overall quality of BLD05 in order to reduce costs, the architect (BLD05-ORG02-REP01) replied:

For instance, the carpets. I thought: "Well, these carpets are crap, I am not having these." So then we had to find something else, or I had to find something else. But the client [BLD05-ORG01] would say: "Surely you can't have expected us to have put up with that." He [BLD05-ORG01] says that to the contractor [BLD05-ORG05], and the contractor [BLD05-ORG05] says: "Well, you were presented with this outline specification document, which was in January last year." But it didn't say anything. All it said was: "Good quality carpets." Who decides what a good quality carpet is? What tended to happen was I would ring BLD05-ORG01-REP01 and say: "This carpet is crap. These kitchen units are hopeless. It's not good enough and I don't think it's appropriate for the project." So he [BLD05-ORG01-REP01] would say to me, or say to BLD05-ORG05, or both, in one of the meetings: "Surely you can't have expected us to accept these. These are not high quality." And they'd [BLD05-ORG05] say: "Well, you've had the specification document." And he'd [BLD05-ORG01-REP01] say: "Well, that only said good quality carpet, and this isn't good quality carpet." And they'd [BLD05-ORG05] say: "Well, I think it is." You are like this all of the time. It is like a tennis match – back and forwards, back and forwards – and at the end of the day it was always me that had to find something that was appropriate. I had to negotiate . . . well, not negotiate, but I was in continuous discussion with BLD05-ORG03.

This statement highlights an interesting aspect of the contractor's (BLD05-ORG05) organizational power advantage. Under the terms and conditions of the JCT 80 form of contract, the primary construction contractor would not normally be in a position

to influence or determine the quality of the finished building. The detailed specification of quality for the finished building would normally be outlined in a document which was written by the architectural design and construction cost consultants and then approved by the client. Such a document did not exist during the realization of BLD05. Instead, the construction-related organizations were expected to fully satisfy their contractual requirements without the assistance of a detailed specification document. As a result, the architect (BLD05-ORG02-REP01) experienced great difficulty and *inter*-personal conflict while fulfilling his role and responsibilities as the contract administrator, as the contracts manager (BLD05-ORG05-REP01) was able to present unsatisfactory materials and components to the client (BLD05-ORG01). Role conflict therefore ensued between the architect (BLD05-ORG02-REP01) and the contracts manager (BLD05-ORG05-REP01), which inevitably led to the occurrence of operating conflict between the two organizations.

The structural engineering design solution for BLD05 was also the focus of inter-organizational conflict. As a result of the *intra*-organizational-type relationship between the developer (BLD05-ORG01) and the contractor (BLD05-ORG05), the parent company (BLD05-PAR01) placed unrealistic financial demands upon its two subsidiaries. It expected the developer (BLD05-ORG01) to maximize its development profit while the contractor (BLD05-ORG05) was also required to maximize its construction profit. These were two discordant goals that proved difficult to attain without inducing social conflict within the network. This aspect of the outcome associated with the relationship between the developer (BLD05-ORG01) and the contractor (BLD05-ORG05) was reported by the quantity surveyor (BLD05-ORG03-REP01) when asked to discuss the amount of previous work experience attained by the developer (BLD05-ORG01). His comments were:

I think there were areas of the client's [BLD05-ORG01] involvement that were less than ideal, but I think he [BLD05-ORG01-REP01] . . . because of the particular relationship between BLD05-ORG01 and BLD05-ORG05, which was an odd arrangement, I think there were individuals in the parent company – in BLD05-PAR01 – who were influencing the two parties far more than perhaps they should have. So they . . . the targets that they were both given in terms of development profit

on the one hand and the construction profit on the other, were often at conflict with each other, and the overall profit that BLD05-PAR01 was trying to achieve was probably not attainable.

The quantity surveyor's (BLD05-ORG03-REP01) report indicates that *intra*-organizational-type conflict appears to have existed between the developer (BLD05-ORG01) and the contractor (BLD05-ORG05) during the process of trying to attain their individual yet mutually inter-related discordant financial goals. This episode of social conflict appears to be similar to the STRUCTURAL CONFLICT (F<sub>10</sub>) factor that was reported in Section 7.3 Results of Structural Equation Modelling Analysis on page 216, which partially confirms the theoretical specification of this study's hypothesized structural equation model.

As a result of this apparent conflictful *intra*-organizational-type relationship, the contractor (BLD05-ORG05) was required to maximize its profit by reducing project-related expenditure. This strategy created tension and *inter*-organizational conflict between the contractor (BLD05-ORG05) and other members of the collectivity. A clear example of this can be found in the structural engineer's (BLD05-ORG04-REP01) reply to a question asking how the relationship between the developer (BLD05-ORG01) and the contractor (BLD05-ORG05) affected his professional role and responsibilities:

I would say that caused confusion at times, because although, strictly speaking, we knew we were working for a client [BLD05-ORG01], it was a sort of quasi-type of contract; whereby, you know, the job was on a knife-edge whether it would go or not. The contractor [BLD05-ORG05] was actually dealing directly with us, to say: "By the way, don't . . . I would recommend doing this", in terms of cost savings, to make sure that he could come up . . . or the project would be as economical as possible. . . . I think BLD05-ORG01-REP01 realizes that there were problems for both ourselves and the architect [BLD05-ORG02] in that respect. . . . I think we tended to bend a lot more than we would have in relation to the contractor [BLD05-ORG05] to try and give him economy. Because, effectively, the contractor [BLD05-ORG05] and the client [BLD05-ORG01] were merely the same group – the same party.

The structural engineer's (BLD05-ORG04-REP01) observation indicates that *inter-organizational* conflict occurred as a direct consequence of the presence of *intra-organizational*-type conflict within the collectivity, which was the outcome of the close in-house relationship between the developer (BLD05-ORG01) and the main contractor (BLD05-ORG05). This incidence confirms Smith's (1989) theoretical conceptualizations regarding the movement of social conflict within and between interdependent organizations within an inter-organizational collectivity.

This case study (BLD05) highlights the problems associated with an organization's ability to change or increase its level of organizational power. The organization with the power advantage, i.e. the contractor (BLD05-ORG05), exploited its situation in order to influence the form of the interaction and ratio of the exchange between itself and the other organizations within the collectivity. Unequally balanced exchange relations therefore promote tension and hostility between organizations. This case study therefore demonstrates that a clear relationship between positional power and social conflict exists, and that social conflict arising at one organizational level is able to mutate and relocate to another organizational level; thus respecting Smith's theories regarding the splitting and triangulation of social conflict in organizations.

Furthermore, following a comprehensive review of the theoretical specification for the POSITIONAL POWER ( $F_4$ ) factor of the structural equation model (which was outlined in Section 6.3.7 POSITIONAL POWER ( $F_4$ ) on page 182), it is apparent that two constructs, i.e. Theme 1: Power and Authority and POSITIONAL POWER ( $F_4$ ), are actually one in the same dimension.

#### **7.4.2 Theme 2: Familiarity and Trust**

The next theme that was identified within the case studies is the extent to which bonds of familiarity and trust appear to facilitate effective inter-organizational relationships and hence reduce the likelihood that social conflict will arise between two or more organizations. In Section 6.3.9 RELATIONAL FAMILIARITY ( $F_6$ ) on page 188, it was explained that the incidence of prior inter-organizational acquaintanceship or familiarity among the parties united within a collectivity will

directly influence the emergence of social conflict to a greater or lesser extent. In other words, prior or existing relationships between organizations and their representatives will positively influence their future relations and negatively influence the level of social conflict. It is anticipated that Theme 2: Familiarity and Trust is almost identical to the RELATIONAL FAMILIARY (F<sub>6</sub>) factor that was investigated during the structural equation modelling exercise that was discussed in Section 7.3 Results of Structural Equation Modelling Analysis, which commences on page 216 of this chapter. An examination of the material derived from the following case study goes some way to confirm this tentative supposition.

For example, the task environment that will form the backdrop against which this analysis will take place is observed building project BLD04. Examples of situations where prior relationships between organizations and/or their representatives reduced the potential for social conflict arising during their present relationship can be found in the transcripts of BLD04.

The verified and coded transcripts derived from the semi-structured in-depth interviews with the boundary role representatives of the various organizations involved in the design and construction of BLD04 can be found in Appendix N: Building Project 4 (BLD04) Interview Transcripts on page 500. Following the method discussed in Section 6.6 Data Collection and Analysis on page 208, the observed organizations and boundary role representatives were allocated the following identification codes in order to establish and maintain their anonymity. These identification codes are illustrated below in Table 7.3 on page 245.

#### *7.4.2.1 Building Project Profile (BLD04)*

BLD04 was the speculative redevelopment of a historic five-storey building located in the commercial centre of a city in the north-eastern region of England. Originally constructed during the 19<sup>th</sup> century, the existing building included a grade-II listed façade which had experienced subsidence. On either side of the confined, narrow plot of land onto which BLD04 was to be constructed were adjacent commercial buildings which had recently been upgraded. The existing building had undergone

**Table 7.3 Building Project 4 (BLD04) Coding Framework**

Identification Code	Observed Building Project and Participants
BLD04	Building project 4
BLD04-ORG01	Commercial property developer
BLD04-ORG01-REP01	Boundary role representative of BLD04-ORG01
BLD04-ORG01-REP02	Company director of BLD04-ORG01 and managing partner of BLD04-ORG02
BLD04-ORG02	Architectural design consultant
BLD04-ORG02-REP01	Boundary role representative of BLD04-ORG02
BLD04-ORG03	Construction cost consultant
BLD04-ORG03-REP01	Boundary role representative of BLD04-ORG03
BLD04-ORG04	Building services and structural engineering design consultant
BLD04-ORG04-REP01	Boundary role representative of BLD04-ORG04 (Structural engineering design)
BLD04-ORG04-REP02	Boundary role representative of BLD04-ORG04 (Building services engineering design)
BLD04-ORG05	Primary construction contractor
BLD04-ORG05-REP01	Boundary role representative of BLD04-ORG05
BLD04-ORG0#-INT01	Interviewer

similar redevelopment during the 1930s to create a disarray of small, partitioned office units which were unsuitable for modern, commercial working practice.

BLD04 involved the demolition of the existing structure behind the grade-II listed façade and the construction of new five-storey, open-plan office accommodation with basement car-parking. The intention was for BLD04 to be a spacious, flexible, highly-serviced office building that would attract potential commercial tenants before construction was fully completed.

During the redevelopment scheme of BLD04, the grade-II listed façade, which was being retained, was temporarily supported while the new internal steel frame was constructed behind. The ground and upper floors of BLD04 were constructed using hollow-rib steel decking with insitu reinforced concrete slabs that were attached to steel beams on the new internal structural frame. Once the new internal composite structure was constructed, the retained façade was to be attached. Both party walls and the retaining wall at the rear of the plot required remedial work. While the new



piled foundations were being excavated and constructed, it was discovered that the ground beneath BLD04 was unstable – several uncharted subterranean watercourses were found which created difficulties for the contractor (BLD04-ORG05) during the construction of the watertight, reinforced basement floor and retaining walls.

BLD04 was conceived during the mid-1980s when demand for good quality, highly-serviced, open-plan office accommodation was high. Regrettably, BLD04 was caught in a downturn in the commercial property market, which resulted in the original property developer being placed into receivership. The title deeds of the existing building then became the property of the investment bank, where they remained until the new property developer (BLD04-ORG01) sought to rescue the redevelopment scheme a number of years later. Commercial tenants were arranged to accommodate BLD04 when finished, but they withdrew just as practical completion was granted. BLD04 remained empty for twelve months before the property developer (BLD04-ORG01) was able to secure another commercial tenant that was prepared to rent the building.

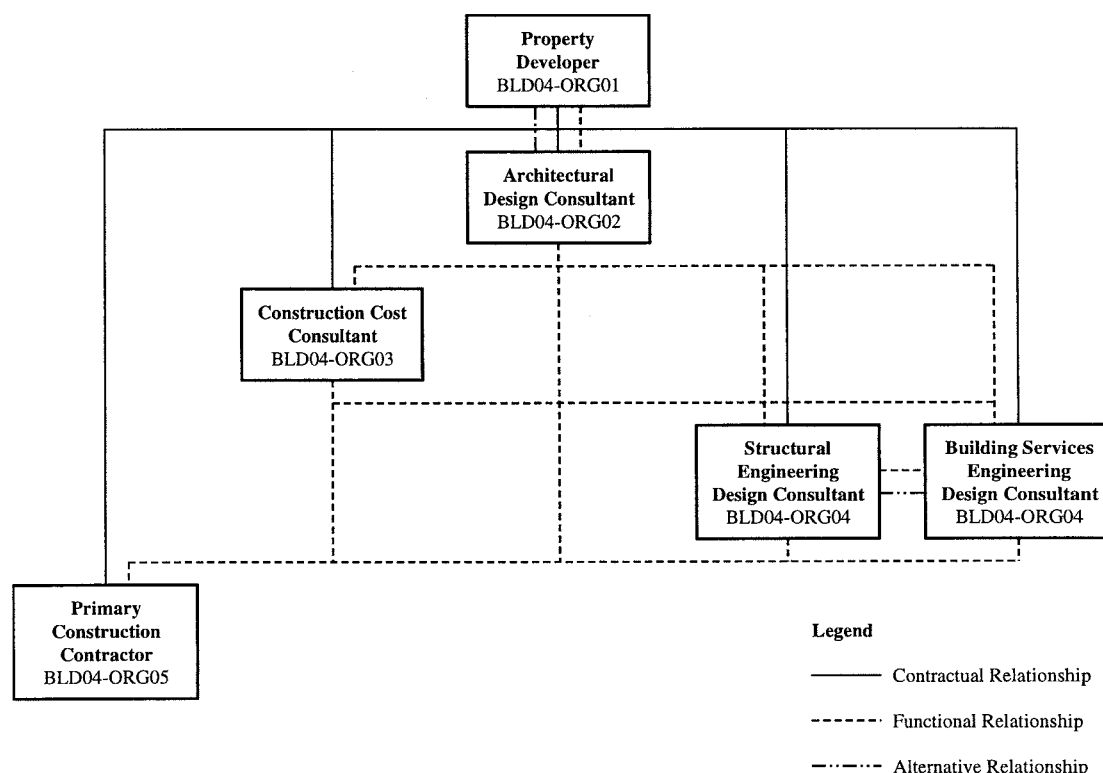
The property developer (BLD04-ORG01) was formed from one member of the original property developer that was placed into receivership, a representative of the investment bank which held the title deeds to the existing building and the managing partner (BLD04-ORG01-REP02) of the appointed architectural design practice (BLD04-ORG02). The decision was made by the developer (BLD04-ORG01) to procure the redevelopment scheme BLD04 using the Joint Contracts Tribunal (JCT) Standard Form of Building Contract 1980 Edition (Private without Quantities). The final cost of BLD04 was just under £3 million.

#### *7.4.2.2 Organizational Profile (BLD04)*

Figure 7.4 on page 247 illustrates the inter-organizational relationships that existed between the network of organizations during the construction sub-process of BLD04. The network is typical for a building constructed using the Joint Contracts Tribunal (JCT) Standard Form of Building Contract 1980 Edition (Private without Quantities). Using Masterman's (1992) strategy for illustrating the different types of relationships

that exist between construction-related organizations during the realization of a building, which was outlined in Section 6.3.7 POSITIONAL POWER (F<sub>4</sub>) on page 182, Figure 7.4 presents the categories of inter-organizational relationships that existed during BLD04's construction phase.

**Figure 7.4 Inter-organizational Relationships during Building Project 4 New-build Construction Sub-process (BLD04-NBCSP)**



At this point it is worth noting the two *intra*-organizational relationships that existed during the realization of BLD04. Firstly, an *intra*-organizational-type relationship existed between the developer (BLD04-ORG01) and the architectural design practice (BLD04-ORG02). This social link depicted the relationship that existed by virtue of the fact that the managing partner (BLD04-ORG01-REP02) of the architectural design practice (BLD04-ORG02) was also a company director of the developer (BLD04-ORG01). Secondly, a true *intra*-organizational relationship existed within the building engineering design practice (BLD04-ORG04). This represented the in-house relationship between the structural engineer (BLD04-ORG04-REP01) – the boundary role representative of the structural design department of the practice – and the building services engineer (BLD04-ORG04-REP02) – the representative of the building services design department of the practice. Each with their own clearly

defined role and responsibilities, the structural engineer (BLD04-ORG04-REP01) and the building services engineer (BLD04-ORG04-REP02) were building engineering design consultants employed by the same organization (BLD04).

As discussed above, BLD04-ORG01 was a newly-created commercial property developer that included a former member of the original property developer who instigated the BLD04 redevelopment scheme during the mid-1980s, the managing partner (BLD04-ORG01-REP02) of the architectural design practice (BLD04-ORG02) and a representative of the investment bank that was in possession of the title deeds for the plot of land onto which BLD04 was to be built. The developer (BLD04-ORG01) therefore did not possess any real experience of procuring buildings; however its company directors did. It was consequently regarded as an experienced construction client, albeit immature, by the organizations and boundary role representatives involved in the design and construction sub-processes of BLD04. This situation helped to minimize the occurrence of dysfunctional social conflict.

BLD04-ORG02 was a well-known architectural practice with over seventy years of work-related experience in the north-eastern region of England. Because the managing partner (BLD04-ORG01-REP02) of the architectural design practice (BLD04-ORG02) was also a company director of the developer (BLD04-ORG01), it was almost certain that the architectural design practice (BLD04-ORG02) would be appointed as the architectural design consultant and contract administrator of the JCT 80 form of contract under which BLD04 was constructed. Potentially, this *intra-organizational-type* relationship could have resulted in the emergence of *intra-organizational-type* conflict within the architectural design practice (BLD04-ORG02) and the developer (BLD04-ORG01), and *intra-personal* conflict within the architect (BLD04-ORG02-REP01) as he tried to simultaneously manage his roles and responsibilities as the administrator for BLD04 and contractual responsibilities to his line-manager/client. As previously stated, the architectural design practice (BLD04-ORG02) could not have possessed any prior experience of working with the developer (BLD04-ORG01). However, it did possess significant experience of working with the other construction-related organizations. The architect (BLD04-ORG02-REP01) was also familiar with his project-related associates.

BLD04-ORG03 was a highly-regarded professional quantity surveying practice with over seventy-five years of experience providing professional services to construction clients in the north-eastern region of England. BLD04-ORG03 was appointed to operate as the construction cost consultant following a recommendation by the architectural design practice (BLD04-ORG02) to the developer (BLD04-ORG01). The recommendation came as a result of a former *inter*-personal relationship between the managing partner (BLD04-ORG01-REP02) of the architectural design practice (BLD04-ORG02), who, at the same time, was also a company director of the developer (BLD04-ORG01), and a partner at the professional quantity surveying practice (BLD04-ORG03). The head-office of the quantity surveying practice (BLD04-ORG03) did possess a great deal of work-related experience with the other construction-related organizations involved in the design and construction of BLD04. Similarly, the quantity surveyor (BLD04-ORG03-REP01) had gained prior experience of working with his project-related colleagues, i.e. the architect (BLD04-ORG02-REP01), the structural engineer (BLD04-ORG04-REP01) and the building services engineer (BLD04-ORG04-REP02), and their employing companies. However, the quantity surveyor (BLD04-ORG03-REP01) did not possess experience of working with the contracts manager (BLD04-ORG05-REP01).

In a similar manner to the quantity surveying practice (BLD04-ORG03), the building engineering design practice (BLD04-ORG04) was invited to participate in the design sub-process of BLD04 by virtue of a personal recommendation from the architectural design practice (BLD04-ORG02). Once again, the managing partner (BLD04-ORG01-REP02) of the architectural design practice (BLD04-ORG02)/company director of the developer (BLD04-ORG01) advocated the building engineering design practice (BLD04-ORG04) to the developer (BLD04-ORG01) as a direct consequence of prior work-related experience between the two companies. The building engineering design practice (BLD04-ORG04) was therefore appointed to function in the dual capacity as the building services engineering design consultant and the structural engineering design consultant. The two roles were executed by different chartered engineers, viz. the structural engineer (BLD04-ORG04-REP01) was appointed as the boundary role representative for the structural engineering design function and the building services engineer (BLD04-ORG04-REP02) as the representative for the building services engineering design function.

Like all other organizations involved in the design and construction sub-processes of BLD04, it was clearly not possible for the building engineering design practice (BLD04-ORG04) to have obtained any prior experience of working with the developer (BLD04-ORG01). However, it did have experience of working with all the other organizations in the project team, including the contractor (BLD04-ORG05). At the representative level, the structural engineer (BLD04-ORG04-REP01) had gained extensive experience of working with all of the organizations and boundary role persons, apart from the contracts manager (BLD04-ORG05-REP01). Whereas, the building services engineer (BLD04-ORG04-REP02) reported that he had acquired experience of working with all of the construction-related organizations and their boundary role representatives.

BLD04-ORG05 was a nationally-recognized building and civil engineering contractor with over eighty years of experience in the north-eastern region of England. It was appointed, following a negotiated tendering procedure, by virtue of a former *inter*-personal relationship between the investment bank representative of the developer (BLD04-ORG01) and a company director of the contractor (BLD04-ORG05). The contractor's (BLD04-ORG05) role and responsibilities changed during the course of constructing BLD04 from that of traditional contractor to design and build contractor. This movement of administrative responsibility (or positional power) did not cause any problems regarding social conflict between the participants. As the contractor (BLD04-ORG05) was a relatively mature, reputable organization, apart from the commercial property developer (BLD04-ORG01), the contractor (BLD04-ORG05) had gained experience of working with the building engineering design practice (BLD04-ORG04), but most surprisingly, had not worked with the architectural design practice (BLD04-ORG02) or the quantity surveying practice (BLD04-ORG03) in the past. This was replicated at the boundary role representative level too.

#### 7.4.2.3 *Building Project Narrative (BLD04)*

Reflecting upon the history of relationships that existed between the organizations involved in the design and construction sub-processes of BLD04, it is apparent that

just about all of the organizations and boundary role representatives were entirely familiar with each other. Together they had acquired a great deal of prior work-related experience with each other while serving construction-related clients in the north-eastern region of England and in other parts of the UK. The aggregate level of relational familiarity among the project participants, both at the organization and boundary role representative levels, was therefore very high. This stimulated the formation of an inter-organizational contractual choice alliance between BLD04's organizational participants and boundary role representatives; thus reducing the likelihood that structural and operating conflict would arise between the mutually interdependent construction-related organizations during the design and construction sub-processes of BLD04.

Many former *inter*-personal relationships between senior company directors and practice partners appeared to be the mechanism by which the inter-organizational alliance was formed. At the centre of this network of former *inter*-personal relations was the managing partner (BLD04-ORG01-REP02) of the architectural design practice (BLD04-ORG02) and company director of the developer (BLD04-ORG01). This individual was solely responsible for the recommendation and subsequent appointment of all professional design consultants by the commercial property developer (BLD04-ORG01). The only exception to this case was the appointment of the contractor (BLD04-ORG05) to the project team. The inclusion of the contractor (BLD04-ORG05) was suggested by another company director of the developer (BLD04-ORG01) following a prior successful inter-organizational relationship between the two parties. It is therefore apparent that the client (BLD04-ORG01) hand-selected each organization that would be involved in the design and construction sub-processes of BLD04 in an attempt to minimize the likelihood of dysfunctional relationships and social conflict arising between the organizations. This selection process involved the retrospective analysis of successful work-related experiences with the participating construction-related organizations and former *inter*-personal relationships between senior management representatives from all of the companies; thus confirming Baker's (1990) theories regarding former social relationships and the diminished incidence of social conflict between agencies.

The background to which the organizations were brought together is highlighted in the following statement by the architect (BLD04-ORG02-REP01), who was responding to a question about the quantity surveying practice's (BLD04-ORG03) appointment by the developer (BLD04-ORG01):

I would suggest BLD04-ORG01-REP01 would have asked our chairman [BLD04-ORG01-REP02]: "Who did we know and who did we use locally?" Recommend is not quite a word I want to use, but I can't think of a better one for the minute. And I would imagine that was the way the relationships were established

There are obviously many potential benefits to be gained for all participants from orchestrating an inter-organizational network that consists of familiar organizations and boundary role representatives. One benefit is associated with the level of relational familiarity among the boundary role representatives, which can lead to increased confidence, trust and co-operation during their exchange relationships. This inevitably leads to the formation of functional inter-organizational relationships and reduced levels of dysfunctional social conflict. During the pre-amble to the semi-structured interview BLD04-TRAN01, the architect (BLD04-ORG02-REP01) made the following comment:

And, yes, we know one another, you know, sort of, very well. And it's a bit like, almost, sort of a quasi-multi-disciplinary team. I mean, what's good about it is the fact there's no getting to know you, as I call it. In other words, if you meet a new consultant, inevitably, you're looking at him and wondering: "Am I going to get on with you? And where are you coming from?" as the Americans, sort of, say. Well, that doesn't happen when we work with BLD04-ORG03 or BLD04-ORG05 or BLD04-ORG04 or, you know, I could go on. I mean, there are several other people as well, because we've known them over the years and, you know, the banter is pretty, sort of, light, if you like – right from the outset. There's no side. I mean, we all know one another and we all know what their attitude is towards things is. And it's just straight in and on with the job. And that's got to be good – as it seems to me.

The above response offered by the architect (BLD04-ORG02-REP01) would appear to indicate that social conflict between boundary role representatives (or *inter-*

personal conflict) can be avoided if the representatives are familiar and have experienced a positive exchange relationship with each other. When proceeding to answer the interviewer's (BLD04-ORG02-INT01) next question, the architect (BLD04-ORG02-REP01) clarified this non-confrontational aspect of familiar inter-personal exchange relationships across the boundaries of the organizations working together on construction-related projects by saying:

I mean, not to the point where it's all taken as a joke, but if you get too serious, there's no fun in it anymore. I think if the fun goes, you know, that sort of . . . doesn't help any relationship at all – so you might, almost, sort of say. Yes, so I mean, we like to . . . what is the phrase: "Like good craic!"

After this response, the architect (BLD04-ORG02-REP01) was questioned about the dysfunctional aspect of inter-personal relationships across organizational boundaries. His response appears to indicate that boundary role representatives assess the *quality* of an inter-organizational relationship against prior positive inter-*personal* experiences. Furthermore, the architect (BLD04-ORG02-REP01) seemed to fully appreciate the influence that dysfunctional relationships between boundary role representatives can have upon the overall performance of projects and the emergence of social conflict, most notably in its operating form. He outlined these points in the next statement:

Well, there are people in this world who do seem, for some reason which is beyond my simplistic ken, who want to, sort of, bang heads, as I call it. I can't really see the object of that exercise whatsoever. You know, it's almost as if I haven't argued with the guy and sorted him out, then I have not done my job somewhere along the line. Well, I don't know, maybe it's me that's wrong? But that's not the perspective I come at it from at all.

As previously discussed above, the amount of trust between the parties at an inter-organizational interface is directly related to their degree of relational familiarity. This proposition matches the work of Currall and Judge (1995) and Gulati (1995), who have intimated that relational familiarity is a positive predictor of mutual trust between boundary role representatives, and thus reduces the likelihood that social



conflict will arise between the inter-related parties. Or much more simply, the longer two boundary role representatives have known each other, the more likely they are to mutually trust and respect one another; and thus quickly resolve any conflicts that may arise. Within the context of the task environment for BLD04, this point was raised by the architect (BLD04-ORG02-REP01) when asked to explain the procedure for co-ordinating secondary contractor design packages. His reply included a descriptive account of how the level of trust between organizations permitted the development and implementation of a bespoke project-related information exchange system. This would not normally have been possible under the terms and conditions of contractual responsibilities stipulated under the JCT 80 form of general contract that was used to formalize the parties' relationships during BLD04.

But we all agreed at the outset that because of the timescale that we're all working to, that is just too long winded for us to be acting as postman, which is all we would be doing in certain situations. So what we always, sort of, say is: "Right, if there is anything of detail that I would have to ask another party about, there is no reason why that can't be asked direct, provided there are copies of the question, correspondence, or whatever it might be, sent to the other major parties involved."

The strong correlation between relational familiarity and trust (and the reduced likelihood of social conflict arising) is further outlined by a statement given by the contracts manager (BLD04-ORG05-REP01). This link between the two constructs also seems to be affected or moderated by a third factor, viz. professional services. It would appear that an organization is less likely to question another's decision about an uncertain aspect of their relationship if the level of their relational familiarity and mutual trust is relatively high. At first glance, this phenomenon would appear to be equivalent to the PROFESSIONAL SERVICES ( $F_2$ ) factor that is included within the hypothesized structural equation model of this study (which is outlined in Section 6.3.5 PROFESSIONAL SERVICES ( $F_2$ ) on page 177). The contracts manager's (BLD04-ORG05-REP01) response was secured following a probing question by the interviewer (BLD04-ORG05-INT01) enquiring about the extent to which conflictual responsibilities or priorities characterized the contractor's (BLD04-ORG05) relationship with the building engineering design practice (BLD04-ORG04).

I don't think we had any with the structural engineer [BLD04-ORG04], so *never*. Because, basically, we were in his hands completely. He had the expert knowledge, and to be honest, we *never* had any conflict. We more or less had to do exactly as, you know, he said. So you know, probably, on the structural side, we never had any conflict. In fact, the one we had with the surveyor [BLD04-ORG03] was over the structural engineer [BLD04-ORG04], whereby we had pumped in a considerable quantity of additional concrete that he [BLD04-ORG04] considered was absolutely necessary.

The associations between inter-organizational conflict, relational familiarity, mutual trust and professional services were then explored further with the contracts manager (BLD04-ORG05-REP01). He was asked to explain the extent to which conflict was more likely to occur when the contractor (BLD04-ORG05) had acquired knowledge of the professional services provided by the organizations located within its collectivity. In response to this question, the contracts manager (BLD04-ORG05-REP01) said.

I would think . . . yeah, there's certainly something in that. When we're completely in their hands and we don't have anything to contribute, then we don't often have a conflict. This is because we more or less have got to do, you know, what they say, and we don't understand the reasons for it – we can't put forward alternatives or anything. Certainly, if we understand what they're doing, then it gives us more opportunity, you know, to have a look at the situation and perhaps put our own input into that.

From the contracts manager's (BLD04-ORG05-REP01) statement it would appear there is a close association between the emergence of social conflict and the extent to which two organizations have knowledge and experience of the services they provide to potential clients; thus confirming the conceptualization of the PROFESSIONAL SERVICES (F<sub>2</sub>) factor. This is an additional and intriguing aspect of the findings from this case study which illustrates how the provision of common construction-related professional services by inter-related organizations can lead to social conflict.

This case study (BLD04) emphasizes the benefits accrued by members of an inter-organizational collectivity when the aggregate level of relational familiarity is high.

In networks where bonds of trust and familiarity are high, effective organizational relationships tend to prevail. Hence, this case study has demonstrated that functional inter-organizational relationships are negatively correlated to dysfunctional conflict. To a lesser extent, it has also indicated that a correlation appears to exist between professional service provision, acquired experience and inter-organizational conflict.

Most crucially, however, this case study has demonstrated the homogeneity that exists between the constructs discussed within this section and the RELATIONAL FAMILIARITY (F<sub>5</sub>) and PROFESSIONAL SERVICES (F<sub>2</sub>) dimensions of the hypothesized structural equation model presented in Section 6.4 Hypothesized Model on page 201.

#### **7.4.3 Theme 3: Respectability and Prestigiousness**

The third and final dominant theme that was identified with the case studies is the extent to which client-, organization - and project-related reputation subjugated the potential for social conflict to arise between the construction-related organizations. In Section 6.3.4 CLIENT REPUTE (F1) on page 173, it was explained that client reputation is the degree to which client organizations command the necessary qualities or attributes to engender project-related confidence and success among the design and cost consultants and contractors during the realization of their building projects. It can therefore be hypothesized that the aggregate level of client repute among the construction project team is negatively correlated to the amount of social conflict experienced by the team members. Additionally, in Section 6.3.10 ORGANIZATIONAL REPUTE (F7) on page 191, it was suggested, in a similar manner to the conceptualization of CLIENT REPUTE (F1), that organizational respectability is the extent to which an organization holds the necessary qualities or attributes to engender project-related confidence among its inter-related project associates. Likewise, it can be hypothesized that the aggregate level of organizational repute within the project collectivity is negatively correlated to the level of social conflict.

Essentially, this case study highlights the relationship that exists between the presence of social conflict among the project team and the amount of respectability across three structural levels, viz. the client level, the organization level and the project level. In a similar manner to Themes 1 and 2, it is anticipated that Theme 3: Respectability and Prestigiousness is almost identical to two of the constructs contained within the hypothesized structural equation model that was discussed and presented in Section 6.4 Hypothesized Model on page 201. The factors which this theme is thought to resemble are CLIENT REPUTE ( $F_1$ ) and ORGANIZATION REPUTE ( $F_7$ ). However, project-related repute would appear to be a dimension which was not considered during the theoretical specification of the structural equation model. In essence, Theme 3: Respectability and Prestigiousness appears to be an amalgamated dimension of two factors included within the tested hypothesized model, viz. CLIENT REPUTE ( $F_1$ ) and ORGANIZATION REPUTE ( $F_7$ ), and one unanticipated construct, viz. project-related repute.

For example, the task environment that sets the scene for this particular analysis is observed building project BLD06. The transcripts for BLD06 included one or two intriguing examples of situations where the level of reputation among the participants was suppressing the emergence of social conflict. This resulted in the project team members maintaining their focus in order to successfully design and construct the prestigious BLD06 building project that was demanded by their exalted client.

The transcripts of the interviews with the boundary role representatives involved with the design and construction of BLD06 can be found in Appendix P: Building Project 6 (BLD06) Interview Transcripts on page 623. Respecting the methodology for anonymizing BLD06's observed organizations and boundary role representatives as detailed in Section 6.6 Data Collection and Analysis on page 208, Table 7.4 on page 258 outlines the assigned identification codes for the case study's participants.

#### *7.4.3.1 Building Project Profile (BLD06)*

The client/end-user (BLD06-ORG01) of the BLD06 building project owned and occupied an obsolete commercial building which was located within an area

**Table 7.4 Building Project 6 (BLD06) Coding Framework**

Identification Code	Observed Building Project and Participants
BLD06	Building project 6
BLD06-ORG01	Client/end-user organizations
BLD06-ORG01-REP01	Boundary role representative of BLD06-ORG01
BLD06-ORG02	Architectural design consultant
BLD06-ORG02-REP01	Boundary role representative of BLD06-ORG02
BLD06-ORG03	Construction cost consultant
BLD06-ORG03-REP01	Boundary role representative of BLD06-ORG03
BLD06-ORG04	Structural engineering design consultant
BLD06-ORG04-REP01	Boundary role representative of BLD06-ORG04
BLD06-ORG05	Building services engineering design consultant
BLD06-ORG05-REP01	Boundary role representative of BLD06-ORG05
BLD06-ORG06	Primary construction contractor
BLD06-ORG06-REP01	Boundary role representative of BLD06-ORG06

scheduled for extensive redevelopment on the perimeter of a city in the north-eastern region of England. The shortly-to-be-demolished, obsolete building was compulsorily purchased from the client/end-user (BLD06-ORG01) by a regional development corporation during the site acquisition phase of its extensive redevelopment scheme. Compensation money from the compulsory purchase scheme was used to partially fund the detailed design and construction of BLD06.

The client/end-user (BLD06-ORG01) was the UK division of a large, multi-national manufacturing company. Following the order to compulsorily purchase its obsolete building, the client/end-user (BLD06-ORG01) made the decision to rationalize its UK operations. This involved centralizing its UK headquarters within one, highly-serviced prestigious building. This new facility was to predominantly feature in the client/end-user's (BLD06-ORG01) UK general operations, as it was needed to provide essential highly-serviced office space for its administrative staff, include staff training and conference facilities and accommodate its board of directors in an array of prestigious single-person offices.

As the client/end-user (BLD06-ORG01) also occupied a commercial building in a residential district of the same city, the decision was made, following an extensive

financial appraisal, to construct a significant new-build extension to the existing 1950s building. As the existing building had experienced costly, major upgrading work over the past ten years to a very high standard, it was decided that this proposal was the most cost-effective solution to the client/end-user's (BLD06-ORG01) crisis.

BLD06 was a lightweight, two-storey, steel framed building constructed with hollow pre-stressed and pre-tensioned concrete floor units which were attached to the steel structure. It included internal mass-concrete sheer walls which were located next to the vertical circulation spaces in an attempt to protect the structure from movement and distortion, and to contribute towards the open-plan interior design philosophy of BLD06. The new-build extension (BLD06) was constructed on large reinforced concrete pad foundations, as the ground conditions beneath BLD06 were very poor and composed of shrinkable clay subsoil. As the site surrounding BLD06 included a number of large, mature trees, it was important that the substructure was protected and appropriately constructed to prevent subsidence occurring. BLD06's super-structure was wrapped in a lightweight, hi-tech, climate-controlling façade which contributed significantly to BLD06's striking, prestigious image as stipulated by the client/end-user (BLD06-ORG01).

In addition to the construction of the new-build extension to the existing 1950s building, BLD06 included the installation of new mechanical and electrical building services facilities throughout the entire complex. This required the excavation and construction of a subterranean network of service ducts to accommodate the new commercial heating and electrical distribution system, including the installation of a new transformer. A major delay to the programme was experienced during the sub-structure works of BLD06, as a gas supply pipe was discovered most unexpectedly. This resulted in the contract finishing five weeks behind schedule.

As the client/end-user (BLD06-ORG01) was predominantly concerned with the manufacture and distribution of household chemically-based products, it was under the impression that it would be possible to procure the design and construction of BLD06 using a general purchase contract. After a series of meetings with the cost consultancy (BL06-ORG03), the quantity surveyor (BLD06-ORG03-REP01) persuaded the client/end-user (BLD06-ORG01) that it would be in its best interest to

procure BLD06 using the Joint Contracts Tribunal (JCT) Standard Form of Building Contract 1980 Edition (Private with Quantities). By utilizing the JCT 80 form of contract, the client/end-user (BLD06-ORG01) was assured that it would gain the prestigious administrative and training facilities that it urgently required, and that the finished building (BLD06) would truly reflect the company's excellent reputation and the seniority of the management working within the complex. The duration of the construction phase for BLD06 was around ten months, and the final cost was just under £4 million. This included the five week delay due to the unexpected discovery of the gas supply pipe and the client/end-user's (BLD06-ORG01) frequent requests for design variations. BLD06 won a local award for outstanding civic design.

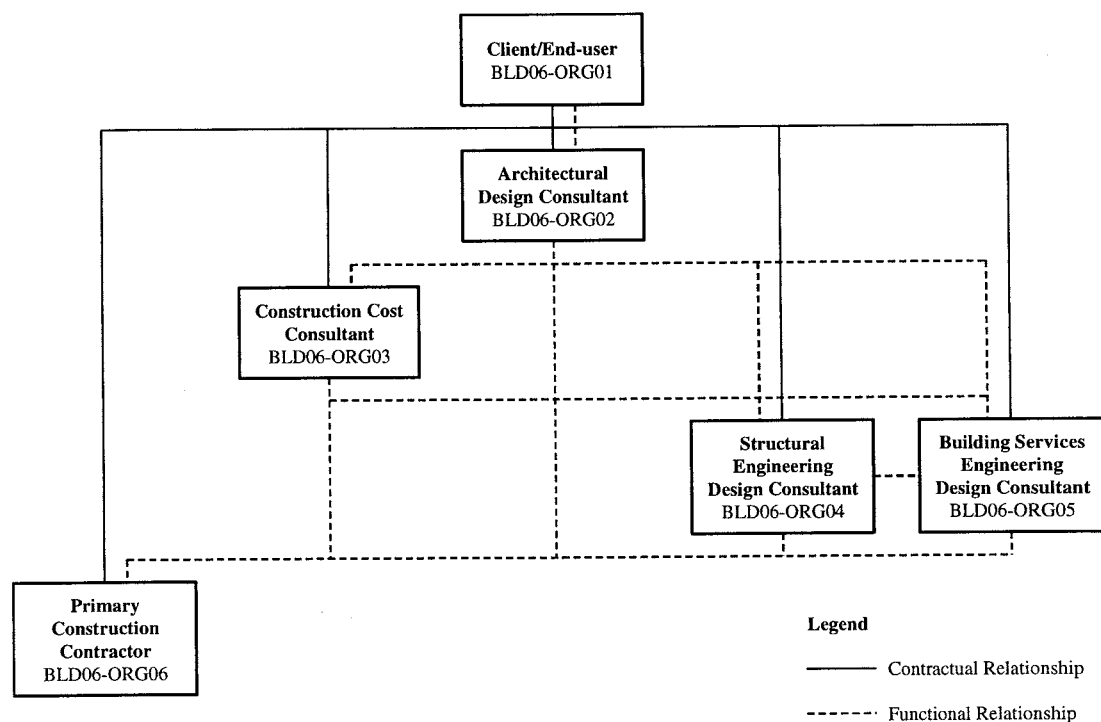
#### 7.4.3.2 *Organizational Profile (BLD06)*

Figure 7.5 below illustrates the inter-organizational relationships that existed among the construction-related organizations during the construction sub-process of BLD06. The network is fairly typical of a building designed and constructed using the Joint Contracts Tribunal (JCT) Standard Form of Building Contract 1980 Edition (Private with Quantities). Masterman's (1992) simple method for diagrammatically symbolizing the categories of relationships that existed between the organizations, which was discussed in Section 6.3.7 POSITIONAL POWER ( $F_4$ ) on page 182, was used to visually present the nature of the relationships that existed during BLD06's fabrication.

Following a detailed examination of the network of inter-organizational relationships that existed between the client/end-user (BLD06-ORG01) and the construction-related organizations, it is apparent that their social system accurately reflected the theoretical model for a JCT 80 form of contract. In other words, there were no unusual *intra*-organizational-type social linkages present; thus, the potential for *inter*-organizational conflict to emerge following the mutation and transference of *intra*-organizational-type conflict among inter-related members of the collectivity was zero.

As previously discussed above, the client/end-user (BLD06-ORG01) was the UK divisional headquarters of a multi-national conglomerate which manufactured and distributed household-based chemical and pharmaceutical products. The client/end-user (BLD06-ORG01) was an extremely well-known, prestigious company which insisted on maintaining and preserving its customer-based reputation. Due to the immense size and purchasing power of the client/end-user (BLD06-ORG01), it had gained significant experience of procuring and maintaining buildings, both in the north-eastern region of England and in other regions of the UK.

**Figure 7.5 Inter-organizational Relationships during Building Project 6 New-build Construction Sub-process (BLD06-NBCSP)**



The client/end-user (BLD06-ORG01) employed a knowledgeable and experienced boundary role representative (BLD06-ORG01-REP01) to administer the procurement of new buildings and the maintenance of existing buildings. The client's project manager (BLD06-ORG01-REP01) was a qualified construction-related professional who was highly regarded by his employer and project-related associates. His acute involvement during the design and construction sub-processes of BLD06 was instrumental in preventing the occurrence of social conflict on many occasions.



The client/end-user (BLD06-ORG01) had frequently employed the professional services of several members of the BLD06 project team during the refurbishment of some of its existing buildings in the north-eastern region of England. For instance, the client/end-user (BLD06-ORG01) had gained significant experience of working with the professional quantity surveying practice (BLD06-ORG03), the structural design practice (BLD06-ORG04) and the building services design practice (BLD06-ORG05). This breadth and depth of experience was similarly repeated among the organizations' boundary role representatives, viz. the client's project manager (BLD06-ORG01-REP01), the quantity surveyor (BLD06-ORG03-REP01), the structural engineer (BLD06-ORG04-REP01) and the building services engineer (BLD06-ORG05-REP01). However, despite its experience of refurbishment-based work, the client/end-user (BLD06-ORG01) had gained very little experience of procuring new-build work in the north-eastern region of England. As a result, the client/end-user (BLD06-ORG01) and its project manager (BLD06-ORG01-REP01) had not acquired any experience of working with the architectural design practice (BLD06-ORG02), the main contractor (BLD06-ORG06) or either of their boundary role representatives.

The architectural design practice (BLD06-ORG02) was a highly reputable company that possessed many decades-worth of work-related experience in the north-eastern region of England. The architectural design practice (BLD06-ORG02) was introduced to the client/end-user (BLD06-ORG01) and invited to undertake the role as the lead design consultant following an introduction to the client's project manager (BLD06-ORG01-REP01) by the boundary role representative (BLD06-ORG03-REP01) of the professional quantity surveying practice (BLD06-ORG03). Throughout the BLD06 project, the architect (BLD06-ORG02-REP01) acted as the project leader and administrator for the JCT 80 standard form of building contract under which the project and inter-organizational relationships were governed. He possessed significant prior experience of working with the professional quantity surveying practice (BLD06-ORG03), the structural design practice (BLD06-ORG04) and the building services design practice (BLD06-ORG05), which included their respective boundary role representatives too. Most surprisingly, the architect (BLD06-ORG02-REP01) had not worked with the main contractor (BLD06-

ORG06), despite the fact that his practice (BLD06-ORG02) had worked with the contractor (BLD06-ORG06) on a number of large projects in the past.

The quantity surveying practice (BLD06-ORG03) was well-known to the client/end-user (BLD06-ORG01) and its project manager (BLD06-ORG01-REP01) before the commencement of the design and construction sub-processes for BLD06. The client/end-user (BLD06-ORG01) had habitually employed the professional quantity surveying practice (BLD06-ORG03) to function as its construction cost consultant during its minor and major refurbishment programme. The reputation of the quantity surveying practice (BLD06-ORG03) in the north-eastern region of England was second-to-none, as it had been practising for many years and was considered by all to be an influential, traditional company.

Former and frequent social *inter*-personal relationships between the representatives of the quantity surveying practice (BLD06-ORG03) and architectural design practice (BLD06-ORG02), i.e. the quantity surveyor (BLD06-ORG03-REP01) and the architect (BLD06-ORG02-REP01), directed the quantity surveying practice (BLD06-ORG03) to recommend the architectural design practice (BLD06-ORG02) to the client/end-user (BLD06-ORG01) for the BLD06 project. As the client/end-user (BLD06-ORG01) did not possess any experience of procuring new-build work in the north-eastern region of England, it was not familiar with any architectural design practices and hence sought a recommendation from the professional quantity surveying practice (BLD06-ORG03) regarding the potential employment of a highly reputable architectural design practice.

Because the client/end-user (BLD06-ORG01) frequently procured refurbishment work in the north-eastern region of England, which always involved the employment of professional services from the same locally-based consultants on a pseudo-term contract, the quantity surveying practice (BLD06-ORG03) had gained significant experience of working with the structural design practice (BLD06-ORG04), the building services design practice (BLD06-ORG05) and their associated boundary role representatives, viz. the structural engineer (BLD06-ORG04-REP01) and the building services engineer (BLD06-ORG05-REP01). Furthermore, an additional consequence of the client/end-user's (BLD06-ORG01) refurbishment programme

was that the quantity surveying practice (BLD06-ORG03) did not possess any experience of working with the main contractor (BLD06-ORG06) or its contracts manager (BLD06-ORG06-REP01) while employed by the client/end-user (BLD06-ORG01). This was because the main contractor (BLD06-ORG06) did not possess the ability to provide professional services within the relatively small problem area predominantly required by the client/end-user (BLD06-ORG01) prior to BLD06.

Both the structural design practice (BLD06-ORG04) and the building services design practice (BLD06-ORG05) were known to the client/end-user (BLD06-ORG01) by virtue of their extensive refurbishment work-related experience. Similarly, because of this work, they were very familiar with each other and the quantity surveying practice (BLD06-ORG03) and, of course, their associated boundary representatives. The structural design practice (BLD06-ORG04) and the building services design practice (BLD06-ORG05) had over one-hundred-and-ten years' experience of providing professional services to construction-related clients in the north-eastern region of England between them. Accordingly, they had gained reasonable experience of working with the architectural design practice (BLD06-ORG02) over the years, but not as much with the architect (BLD06-ORG02-REP01). Unlike the building service design practice (BLD06-ORG05) and the building services engineer (BLD06-ORG05-REP01), the structural design practice (BLD06-ORG04) and its structural engineer (BLD06-ORG04-REP01) did not possess any prior experience of working with the contractor (BLD06-ORG06) or its contracts manager (BLD06-ORG06-REP01).

Once again, the client/end-user's (BLD06-ORG01) lack of experience regarding the procurement of large, new-build projects in the north-eastern region of England prevented it from knowing reputable contractors that operated within the region. In an attempt to overcome this weakness, the client's project manager (BLD06-ORG01-REP01) approached the architect (BLD06-ORG02-REP01) and the quantity surveyor (BLD06-ORG03-REP01) in order to ascertain a small number of contractors that could be invited to tender for the construction of BLD06. Following an intensive tendering and interview exercise, the contractor (BLD06-ORG06) was awarded the contract to build BLD06.

#### 7.4.3.3 *Building Project Narrative (BLD06)*

Several subtle yet profound observations were made regarding the nature of the social system which incorporated the client/end-user (BLD06-ORG01) and its construction-related organizations during the BLD06 project. These observations touch upon the key issues presented within the narratives for Themes 1 and 2 in Sections 7.4.1 and 7.4.2 respectively.

BLD06 was to be a very important building for the client/end-user (BLD06-ORG01). It was envisaged that BLD06 would become a landmark building for the client/end-user's (BLD06-ORG01) UK administrative and training facilities, and would frequently host conferences and training seminars with senior representatives from its worldwide headquarters. This requirement was at the forefront of the client/end-user's (BLD06-ORG01) mind when it commissioned the project team responsible for the design and construction of BLD06. When assembling its construction-related project team, the client/end-user (BLD06-ORG01) made the decision to utilize the professional services of the organizations that had honourably served it during prior refurbishment schemes. These organizations included a relatively small number of locally-based building design and cost consultants, including a quantity surveying practice (BLD06-ORG03), a structural design practice (BLD06-ORG04) and a building services design practice (BLD06-ORG05). Collectively, and individually, these organizations had acquired a high level of professional reputation with the client/end-user (BLD06-ORG01), with each other and with local industry. The latter was the direct benefit of having worked for a particularly prestigious client on more than one occasion.

When the client/end-user (BLD06-ORG01) sought the professional services of an architectural design practice to conceptualize its vision for BLD06, it canvassed the recommendations of its existing, relatively small project team. This was a critical and strategic procedure for the client/end-user (BLD06-ORG01), as it recognized the importance and potential benefits of formulating a much larger and complete project team with organizations and representatives that fully respected one another, were totally familiar with each other and were equally reputable. Ultimately, this strategy adopted by the client/end-user (BLD06-ORG01) ensured that both structural and

operating conflict during the design and construction sub-processes of BLD06 were kept to an absolute minimum.

A similar yet slightly modified procedure was adopted by the client/end-user (BLD06-ORG01) when considering the need to appoint a primary contractor to co-ordinate the construction of BLD06. Instead of canvassing the opinions of its project team, the client/end-user (BLD06-ORG01) requested that the team conceive a list of highly reputable contractors that it would be happy to work with. Following a fairly detailed consultation and pre-selection exercise, several contractors were chosen from the list and invited to tender for the JCT 80 contract to construct BLD06. In a conventional manner, the successful contractors were invited to attend an interview with the client's project manager (BLD06-ORG01-REP01) and the boundary role representatives of the project team. Each interview provided a carefully-controlled venue that enabled the project team to outline their anticipated relationship with the contractor during the construction of BLD06. This ensured the contractor was able to overcome Stinchcombe's (1965) concerns regarding the liability of newness for social networks. Essentially, this method would limit the potential for social conflict to arise within the established and familiar inter-organizational collectivity when the new contractor (BLD06-ORG06) was introduced. This distinctive observation was highlighted by the building services engineer's (BLD06-ORG05-REP01) report of this event:

And this scenario was actually set out to them: "This is the way the job is going to work. If you're not happy with it, tell us now and you don't tender." And they all accepted it: BLD06-ORG06 . . . . So they knew from day one what the score was, and it went alright.

This statement outlines the enormous benefit accrued by the client/end-user (BLD06-ORG01) by ensuring the existing network of familiar and respectable organizations was not disturbed by the introduction of a contemporary agency. By fully respecting this aspect of the social or inter-organizational network for BLD06's realization, the client/end-user (BLD06-ORG01) was able to reduce the likelihood of dysfunctional social conflict arising and impinging upon the overall success of the BLD06 project. This incidence highlights the close association that exists between this particular

component of Theme 3: Respectability and Prestigiousness and the RELATIONAL FAMILIARITY (F<sub>6</sub>) and ORGANIZATIONAL REPUTE (F<sub>7</sub>) factors that are contained within the hypothesized structural equation model.

The qualitative nature of BLD06's design was also recognized as an important factor that contributed towards the functional inter-organizational relationships that existed throughout the project. In addition to the aggregate level of organizational reputation and relational familiarity among the team members, the kudos gained by the various participants of BLD06's design and construction sub-processes was sufficiently large to discourage the emergence of dysfunctional social conflict. In essence, as BLD06 was considered by the client/end-user (BLD06-ORG01) and construction-related organizations as an outstanding example of architectural design, their enthusiasm and commitment towards the realization of this architectural masterpiece resulted in the absence of dysfunctional social conflict during the project. The extent to which the reputation that was potentially available to the participants of BLD06's design and construction upon completion was expressed by the contracts manager (BLD06-ORG06-REP01) in the following statement:

Are you aware it won an award? When I saw the building, I said to myself: "This job will win an award or something." It was that kind of building. It was a quality building. It stood out from any other building that we'd really been involved with until that time. It had a lot of interesting features, and it was the environment that it was being built in. The whole lot just fitted together very well.

The contracts manager's (BLD06-ORG06-REP01) response clearly indicates there is a requirement to include a dimension within the structural equation model that respects the degree of project-related reputation or prestige possessed by the construction project organization members. It is apparent that project-related reputation or prestige has a close association to the amount of operating conflict within the inter-organizational collectivity.

In addition to the aggregate level of organizational and project-related reputation, there was a third and final factor which contributed to the distinct absence of social

conflict. The client/end-user (BLD06-ORG01) was considered to be a highly-reputable and prestigious company by all of the construction-related organizations involved in the design and construction of BLD06. When asked to rank the overall reputation of the client/end-user (BLD06-ORG01), all respondents, apart from the contracts manager (BLD06-ORG06-REP01), replied that the client/end-user (BLD06-ORG01) was *very reputable* – the maximum response. Incidentally, the contracts manager (BLD06-ORG06-REP01) reported that the client/end-user (BLD06-ORG01) was *reputable* – the second-highest response. This indicates that all of the boundary representatives felt that the client/end-user (BLD06-ORG01) was an outstanding company to work for, despite its fastidious and awkward nature. When responding to BLD06-ORG05-INT01's question about the client/end-user's (BLD06-ORG01) reputation, the building services engineer (BLD06-ORG05-REP01) replied:

You're probably aware that the client is a particularly difficult one to work for. They demand the best. They are prepared to pay for it, in fairness, but they are a particularly awkward client. It probably comes as a bit of a shock for BLD06-ORG02-REP01, because it was his first job with them. Didn't come as a shock to me or the QS [BLD06-ORG03-REP01], because, obviously, we worked with him over the years and we knew what they were like. But, I mean, from a reputation point-of-view, I don't know. It's a difficult one that. I mean, basically, they wanted a good building and they've got one. So I think they are *very reputable* as an organization. You can't question that. They're a blue-chip company. The fact that they went along the tendering route that I was telling you about, from our suggestion, shows that. I mean, they could have saved money. They could have knocked money off that by saying: "Well, let the builder hawk it round." But they weren't prepared to do that. I mean, that thing alone, to me, makes them *very reputable*.

The building services engineer's (BLD06-ORG05-REP01) statement has provided valuable evidence to confirm the hypothesis regarding the potential relationship between client respectability and dysfunctional social conflict. Essentially, client reputation is negatively correlated to inter-organizational conflict at the operational level. Hence, organizations that function within a social network in which the degree of client respectability is generally high are less likely to witness and experience social

conflict. This confirms the theoretical specification of the CLIENT REPUTE ( $F_1$ ) factor that is contained within the structural equation model that was analysed in Section 7.3 Results of Structural Equation Modelling Analysis on page 216.

This case study (BLD06) has demonstrated an important aspect of the association between client-, organizational- and project-related respectability and the emergence of social conflict within an inter-organizational collectivity. As the aggregate level of respectability among organizations and their representatives increases, the extent to which they become mutually interdependent also increases. In other words, *repute* or *reputation* facilitates interdependence between organizations operating within the same inter-organizational collectivity, and thus the potential for dysfunctional social conflict is subsequently dissipated. Two of the factors, i.e. CLIENT REPUTE ( $F_1$ ) and ORGANIZATIONAL REPUTE ( $F_7$ ), included within the hypothesized structural equation model that was outlined in Section 6.4 Hypothesized Model on page 201, have subsequently been verified by this particular case study analysis, in addition to the identification of the requirement to include a further dimension to fully respect *project-related* reputation or prestigiousness.

## 7.5 SUMMARY

This chapter has presented the findings of this study into inter-organizational conflict in the UK construction industry. It commenced with a general description of the attributes of the observed building projects and participants. Following an account of the basic principles of structural equation modelling, the results of the data analysis exercise using EQS version 5.7b were presented and discussed. The results were summarized in a recursive path model of inter-organizational conflict which was diagrammed in Figure 7.2 on page 223. It was explained that a small number of comparative organizational factors were associated with interdependence, and almost all exerted significant effects on at least one of the two types of inter-organizational conflict. Also, interdependence was found to be positively correlated to structural conflict but not to operating conflict. Of all the exogenous organizational factors examined, the most notable, in terms of its impact upon the endogenous factors, was found to be professional status.



In the second section of the chapter three dominant themes were identified and appraised from the case studies. The extracted themes were selected as a result of their dominance and vociferous emphasis during the in-depth interviews. Each theme, i.e. positional power, relational familiarity and client and professional status, was found to exert significant influence upon the level of interdependence that existed between the construction-related organizations and the emergence of social conflict within the inter-organizational collectivities. The themes were explored from the perspective of their case study in order to gain a deeper and richer understanding of the issues surrounding their occurrence and evolution during the building project.

The relationships and implications of these two categories of findings to a focused understanding of inter-organizational conflict in the UK construction industry will be outlined in the following chapter, Chapter 8. Furthermore, the correlations that exist between the primary data gathered during the mixed-method research inquiry, i.e. the results of the structural equation modelling analysis and the exploratory case study analyses, will be presented in order to theoretically revise the hypothesized structural equation model that was presented in Section 6.4 Hypothesized Model on page 201 of the previous chapter.

## **8 CONCLUSION AND RECOMMENDATIONS**

### **8.1 INTRODUCTION**

The aim of this chapter is to present the relationships that exist between the work completed during this Ph.D. study, the original research aim and objectives, and the previous theories discussed in the literature survey chapters. The implications that arise from the results regarding future policy and practice within the context of the construction industry in the UK will also be considered. The chapter will conclude with a series of recommendations for future research that might follow this study.

### **8.2 THEORETICAL REFLECTION AND REVISION**

The purpose of this Ph.D. research project was to incorporate the key aspects of comparative organizational variables and interdependence of construction-related organizations into a structural equation model that explains inter-organizational conflict during the construction sub-processes. Most previous research that has been conducted into conflict in the UK construction industry has tended to focus on the exogenous properties and internal structures of the individual organizations, the attributes and project management practices of clients, and the identification of onerous contractual frameworks; it has not derived or examined properties of the inter-organizational linkages.

During this study, the investigation of comparative organizational properties, interdependence and operational and structural conflict was undertaken. This involved the identification of the factors which influence the development of conflictful relationships and the mechanisms by which conflict influences behaviour in interdependent relationships and, ultimately, the extent to which conflict occurs between related organizations. The underlying aim of the study was to incorporate the key elements of the organizational interface and interdependence into a structural model that explains, and hence also predicts, the occurrence of inter-organizational conflict. Furthermore, the results of this research point to the impact and relevance of the exogenous organizational factors in their ability to predict the potential for

dysfunctional conflict to arise within an inter-organizational network found within the construction industry of the north-eastern region of England.

Over twenty-five years ago Molnar and Rogers (1979) presented a recursive path model which explained variance in the exogenous organizational variables, interdependence, structural conflict and operating conflict among pairs of natural resource agencies in five non-metropolitan mid-western counties of the USA. Three general propositions were confirmed following their seminal study. First of all, comparative organizational properties do determine the amount of interdependence that occurs within an inter-organizational relationship. Secondly, structural conflict is a function of the level of interdependence that exists between two organizations. Thirdly, operating conflict is a product of conditions underlying structural conflict, the level of interdependence and the comparative properties of the interacting agencies. Molnar and Rogers evaluated their structural model in two stages. The first stage involved the examination of the bivariate relationships under controls for network membership to determine whether spurious factors affected the model. The second stage involved the analysis of the three simultaneous equations for the model to determine the direction and magnitude of the path coefficients, as well as the overall explanatory power of the model. This enabled Molnar and Rogers to relate the finer details of the structural equations to the theoretical arguments for all of the variables that were included within their study.

Molnar and Rogers discovered that a number of comparative organizational variables were associated with interdependence. These included variables which measured the extent to which organizations provided similar professional services to clients and shared involvement in similar problem areas or task environments, and also included a variable which measured the extent to which organizations accomplished their own goals when a formal arrangement existed for the attainment of inclusive goals. This last administrative variable was found to be the main predictor of interdependence. They also discovered that almost all variables exerted significant effects on at least one of the two types of conflict and that interdependence was positively correlated to structural conflict but was not associated with operating conflict. Finally, Molnar and Rogers reported that age difference (or relative maturity) did not exert a positive or negative effect upon any of their endogenous organizational variables.

This study differs from Molnar and Rogers' analysis because it was focused on the comparative properties of organizations within the inter-organizational field of the construction industry in the north-eastern region of England and not the management of natural resources in the mid-western counties of the USA. Accordingly, Molnar and Rogers' model was modified to construct a contemporary model which included latent factors that were applicable to the new field of investigation. The modified model included eleven organizational variables or theoretical constructs which were pertinent to the contextual setting of the construction industry in the UK and the three dependent or endogenous variables originally identified and investigated by Molnar and Rogers. Reflecting upon the outcomes of Molnar and Rogers' study, and bearing in mind the context of this investigation, it was anticipated that completely different conclusions would be attained from the brand-new analysis. It was expected that the relative similarity of organizational domains, the incidence of acquaintanceship and the relative maturity of the organizations participating in the UK construction industry would be important determinants of inter-organizational relationships.

In a completely different manner to Molnar and Rogers' study, this investigation used a mixed-method approach to the collection and analysis of primary data and the subsequent interpretation of original findings. The study included as its database six purposively-selected case study building projects from which structured primary data were collected; these were gathered during a series of semi-structured interviews with the twenty-three boundary role representatives of the twelve construction-related organizations that were involved in the design and construction sub-processes of the observed schemes. Despite being restricted by their limited breadth, the non-numerical data provided a deep and meaningful representation of the circumstances surrounding the presence of social conflict between the interdependent organizations and their boundary role representatives, and the inability of the organizations to establish effective inter-organizational relationships.

Within-case content analysis of the textual data acquired from the semi-structured qualitative research interviews resulted in several dominant themes being identified from the six case study building projects. Although restricted by their limited number, the case studies and their associated themes proved to be influential in

confirming the validity of the hypothesized structural equation model. Following a recapitulation of the theoretical framework of the model's conceptualization and an examination of the dominant themes extracted by content analysis of the verbally-reported interview data, it was discovered in all cases that the extracted themes were exactly the same as several of the dimensions included within the hypothesized structural equation model. These extracted themes/dimensions included the power and authority of the construction-related organizations and their boundary role representatives; the amount of familiarity and trust within the inter-organizational collectivity; and the extent to which the organizations and their boundary role representatives perceived their mutual client, one another and the building project to be prestigious or highly respectable social/physical entities.

The modified structural model that was analysed during this investigation embraced five latent factors that were not included within Molnar and Rogers' study. The new variables represented measures of the following concepts: the aggregate amount of respectability for the client served; the level of positional power advantage held by the parties; the incidence of prior acquaintanceship among the parties; the extent of respectability among the parties; and the professional skill, competence and status of the boundary role representatives. These five constructs were included within the modified structural model because of their theoretical and intuitive relevance to the occurrence of inter-organizational conflict and the extent of mutual organizational interdependence.

Molnar and Rogers' methodology was only partially replicated during the analysis of the revised structural equation model. The first stage of the analysis involved the examination of the model's three simultaneous equations in order to determine the direction and magnitude of the path coefficients. The second stage, as previously discussed above, involved the content analysis of the six case studies in order to explore and confirm the model's theoretical adequacy, reliability of measured variables and internal consistency measures of reliability, and practical issues. This bespoke approach provided a powerful confirmatory technique for the structural equation model's overall adequacy; thus confirming the complex set of relationships between the comparative organizational variables that were originally hypothesized and subsequently confirmed by the structural equation modelling analysis that was

undertaken with EQS. Chapter 7 explained that a number of these correlations were significant predictors of interdependence, structural and operating conflict during the design and construction sub-processes of building projects. Interpretation of the major inter-relationships between the eight exogenous and three endogenous organizational variables will now be related.

In a similar manner to Molnar and Rogers' findings, comparative organizational properties were found during this current study to be determinants of structural conflicts between related organizations. Organizations that provided common professional services to clients within the same task environments tended to report higher levels of conflicting responsibilities and priorities, particularly if they were also established at different periods of time. This result indicates that it was the provision of similar professional services by relatively inexperienced, immature organizations which engendered greater awareness of discrepancies in organizational purpose and direction within the more experienced, mature organizations.

Conflicts over the basic identities and responsibilities that define a relationship were diminished when the interacting organizations and their representatives possessed prior experience of working with each other. This subjugating factor of structural conflict was significant among the organizations observed during this study. Pre-existing or prior ties between organizations and the inter-personal ties of boundary role representatives did appear to influence subsequent co-operative relationships between organizations. This result indicated that there was a negative correlation between the amount of conflict associated with the rules and procedures that governed an inter-organizational relationship and the extent of acquaintanceship among the interacting parties. It would therefore appear that established social networks are a means of reducing conflict among interacting organizations. In this respect, as Granovetter (1985) has pointed out, organizational decision-makers, i.e. boundary role representatives, use historical social networks to overcome the uncertainty and distrust that so often plague exchanges.

The effect of comparative properties on structural conflict was not diminished when interdependence was taken into consideration. This outcome was also reported by Molnar and Rogers following the completion of their study in 1979. Like Molnar

and Rogers, it has been argued that a significant progenitor of conflict within inter-organizational relationships is the terms, conditions and subsequent execution of interdependence arrangements between organizations. Interdependence was found to have a causal origin in three comparative properties. A source of conflict in its own right, interdependence therefore did not serve to mediate the resulting impact of the comparative properties upon the overall level of structural conflict.

A prominent theme that emerged from one of the case studies was that the disputes and disagreements that occurred within an inter-organizational relationship were the result of inappropriate or unanticipated priorities and responsibilities by a member of the dyad. When, for example, an organization was presented with the opportunity to increase its level of organizational power and authority, it had a significant impact upon the emergence and progression of structural conflict within the collectivity. This observation followed Raven and Kruglanski's (1970) theory which states that the intensification and resolution of conflict between organizations is determined not only by the amount of power at the disposal of the antagonist but also the qualitative nature of power which is brought to bear on the conflictful situation. Because the antagonist deliberately chose to utilize inappropriate organizational power by virtue of its elevated position within the inter-organizational collectivity, the victimized organization was unable to successfully re-establish the *true* nature of their structural relationship when dysfunctional conflict invariably ensued. Social influence was therefore a powerful predictor of dysfunctional conflict between organizations when they possessed undefined roles and unclear lines of responsibilities. Thus, as Cook (1977) has already explained, the more power an organization possesses, the more influence it has to determine the nature of the inter-organizational exchange between itself and other organizations located within the same collectivity or social network.

Comparative organizational properties significantly influenced inter-organizational behaviour by defining interdependent relationships within the inter-organizational field. Interdependence was believed to be a dominant moderator of both structural and operating conflict. This was demonstrated not to be the case by the results of the structural equation modelling exercise, as it was shown that interdependence did not influence the manifestation of operating conflict between interacting organizations. Perceived professional status of the boundary role representatives was by far the

most influential comparative factor upon the decision by organizations to conjoin during the process of executing a building project. For instance, when organizations that employed highly experienced and reputable professionals were required to work together during the construction sub-process of a building, it was discovered that their tendency to become interdependent while providing professional services to their mutual client was greatly reduced. This is exactly the point made by Faulkner and Day (1986), when they argued that in the highly diversified and fragmented setting of the UK construction industry, status tends to act as a mechanism by which relationships between individuals and their employing organizations may be defined and regulated. Hence, within the restricted context of this current study, there is clear evidence that inequalities of professional status between the boundary role representatives does lead to imbalanced communications and working practices between the different construction-related organizations. Inter-professional status evaluation therefore does appear to directly influence project performance and organizational relationships as propounded by Faulkner and Day.

Although meaningful for a detailed understanding of conflict between organizations, this result regarding inter-professional status evaluation was reversed when two closely-related additional comparative factors were present. The data from the case studies indicated that client- and project-related reputations influenced the frequency of communication between organizations and the re-alignment of individual organizational goals to reflect inclusive project-related goals. Increased interdependence between the organizations therefore ensured that project-related success was attained by all participants. This result indicates there was a negative association between interdependence and social conflict, which contradicts Molnar and Rogers' findings. They anticipated that elevated interdependence would generate social conflicts and inconsistencies between social agencies that would need to be confronted and adequately resolved in order for the inter-organizational relationships to continue on a stable basis. There was therefore a strong, positive correlation between interdependence and professional status within the context of this particular case study.

Comparative organizational variables were also important determinants of operating conflicts between inter-related organizations. The data show that disagreements and



disputes which occurred among organizations during the process of problem-solving could largely be attributed to inconsistencies regarding organizational reputation. In networks where resource-dependent organizations considered themselves competent and able to engender project-related confidence among their dependent associates, the number of disputes that characterized their inter-organizational relationships was generally low. Organizational reputation was therefore a comparative factor that encouraged the successful interaction of construction-related organizations during the realization of building projects. Levine and White's (1961) study of relationships among community health and welfare agencies demonstrated that variables such as organizational prestige influenced the patterns of interaction between organizations within the limits established by the function variable. Deutsch (1969; 1983) also stipulated that competitive social relationships between organizations, which so often lead to inter-organizational conflict, are induced by the absence of commonality in beliefs and attitudes. Hence, organizational reputation was a source which reduced the potential for operating conflict to arise within an inter-organizational collectivity.

In a similar manner to organizational reputation, high professional status was found to reduce the likelihood of disputes arising between inter-related organizations. As inter-organizational and inter-professional relationships during the construction of buildings tend to be fairly short-lived, it is essential that boundary representatives are able to come into close contact with each other in order to pursue and realize the goals of their common client without experiencing dysfunctional conflict. According to Faulkner and Day, the nature of inter-professional relationships will tend to vary from the formal authority of one position over another, to the informal interaction of equals. Hence, the ability of construction-related professionals to relate to each other on both of these levels is paramount. The results of this study appear to indicate that this was indeed the case. When boundary role representatives perceived themselves to be equally reputable, their reported level of operational conflict tended to be low. The data therefore indicates that there was a strong affiliation between productive inter-professional relationships and perceived professional status in the observed inter-organizational collectivities.

The data also revealed that disagreements over the roles and responsibilities of organizations and their boundary role representatives are positively correlated to

three comparative properties. These included an organization's conviction towards client respectability, disposition towards organizational power and authority and its relative maturity. Randall (1973) and Benson (1975) have indicated that agencies which attempt to establish new roles and responsibilities within an existing structure of activity will tend to encounter resistance and opposition from the established order. Age differences between inter-related organizations therefore encourages operating conflict to arise among groups attempting to establish or expand their domains and existing groups seeking to minimize threats and disruptions to their seasoned activities. According to Molnar and Rogers, this is because age differences place new organizations at a distinct disadvantage when compared with established networks of organizations, and their boundary role representatives are therefore unable to utilize an accumulated set of informal ties that facilitate the resolution of operating conflicts. Evidence from this study would seem to corroborate Molnar and Rogers' concern regarding the liability of newness and the absence of stable ties in new inter-organizational relationships.

Structural conflict was also found to be a significant source of operating conflict. This discovery replicates one of Molnar and Rogers' original findings, which on reflection is a fairly obvious yet equally true discovery. The data indicates that protracted disagreements among construction-related organizations were generated by contrasting and incongruent organizational functions which the boundary role representatives were unable to reconcile. Furthermore, as discussed above, structural conflict was often reported when organizations were unable to reallocate the imbalanced power and authority within their inter-organizational relationships. Hence, as Pondy (1969) indicated, conflicts over the basic identities that define and control an inter-organizational relationship were often deliberately created in an attempt to coerce the reallocation of power and authority, and thus promote the realignment of the linkage and the re-establishment of role performance.

Although these findings are viewed as preliminary, they are, most importantly, very promising. They suggest that the three general propositions originally confirmed by Molnar and Rogers in 1979 have largely been reconfirmed during this investigation. For instance, the results would appear to indicate that the comparative organizational properties did determine the level of interdependence that occurred within the inter-

organizational collectivities during the sub-processes of designing and constructing the observed building projects. Furthermore, they have revealed that structural conflict was a function of the amount of interdependence that existed between the construction-related organizations. And finally, they have provided some evidence that operating conflict was a product of the conditions that underlay structural conflict and the comparative properties of the interacting construction-related organizations. This last proposition differs from Molnar and Rogers' finding in that no causal relationship was discovered between interdependence and the manifestation of operating conflict.

What this study has effectively discovered is that similarities on certain comparative organizational dimensions will inevitably lead to the emergence of social conflict between construction-related organizations, and how differences in professional, client and organizational prestige and relational familiarity can actually increase the level of inter-organizational conflict. Within the limited context of this study, it has therefore been demonstrated that the modified structural equation model is correctly specified and includes a set of systematic relationships that provide consistent and detailed explanations for the occurrence of inter-organizational conflict. Essentially, this confirms the adequacy of the assumptions which underpin the structural model and its applicability to the inter-organizational field of the construction industry in the north-eastern region of England.

The implications of these findings to the UK construction industry's structural and operational policies and practices are potentially far-reaching. What this study has attempted to explain is with whom an individual construction-related organization will be able to establish a non-confrontational inter-organizational relationship during the process of constructing a building. Key dimensions which should be considered when planning to formulate a construction project organization are the professional credibility of the boundary role representatives, the extent to which the organizations share involvement in similar problem areas or task environments, the extent to which the organizations and their boundary role representatives perceive the mutual client as possessing the necessary qualities and attributes to engender project-related confidence and success, the extent to which the organizations will similarly invoke project-related confidence among their interdependent associates, and the

incidence of prior acquaintanceship among the organizations and their boundary role representatives. Each of these five key factors will have a significant positive or negative impact upon the amount of social conflict that will arise between the construction-related organizations during the construction sub-processes of building projects in the UK construction industry.

Although these conclusions remain tentative because of the study's limited sample size, they nevertheless have clear and profound implications. Construction clients and project administrators will be able to attain a detailed understanding of the dominant comparative organizational factors that influence the occurrence of social conflict between organizations and, if deemed necessary, take appropriate remedial measures in order to regulate its dysfunctional outcomes during the design and construction sub-processes of building.

### 8.3 RECOMMENDATIONS

The findings of this study indicate that the theoretical basis of the contemporary comparative model of social conflict between construction-related organizations in the UK construction industry is accurately specified. Furthermore, the empirical data have demonstrated that comparative properties do influence interdependence during inter-organizational relationships and the manifestation of structural and operational conflict during the design and construction sub-processes of large new-build projects. Following the completion of this research project, scholars have an opportunity to gain a focused understanding of the circumstances under which different groups of exogenous organizational factors could positively and negatively influence the occurrence of functional and dysfunctional inter-organizational relationships in the construction industry in the UK.

Further research should clearly build upon the strengths of this study. One important aspect in which it could be focused is the systematic, large-scale experimentation of the structural equation model using a representative sample of recently constructed large building projects in the UK in order to inductively infer reliable conclusions from the unique perspective of the population. These generalized results would form

a benchmark from which future studies could be compared. For instance, as this study was cross-sectional in nature, as opposed to longitudinal, the generalized model could be used to investigate inter-organizational conflict following specific milestone events throughout the design and construction sub-processes of building projects. Differences within and across building projects across time could therefore be examined. The time interval could be days, weeks or months. Although there are several different approaches available, one relatively new and exciting approach to analysing longitudinal data with three or more time points is called Latent Growth Curve Modelling. According to Ullman (2001), this approach is innovative because it allows tests of individual growth patterns to be performed. Several hypotheses can be tested with this form of analysis. For instance, how does a dependent variable, say structural conflict, change across multiple time points during the lifetime of a project? Is the change linear or quadratic in nature? This and many other questions could be answered by applying the contemporary structural equation model to many different project-related situations. This procedure would enable researchers to gain a clearer picture of social conflict and its dynamic tendencies during the realization of building projects. It may also enable them to evaluate the circumstances under which social conflict encourages functional as opposed to dysfunctional outcomes.

By taking this recommendation one step further, academics may like to consider the possibility of experimenting with the structural equation model in different regions of the UK. This form of structural equation modelling is often used to determine group differences. Do two or more groups differ in their covariance matrices, regression coefficients or means? For example, if the structural equation model was tested on projects in the South of England and also Scotland, to what extent would the same model fit both geographic locations? Multiple group modelling could be used to develop separate structural equation models for different groups in order to statistically compare them. Such an approach would enable a cross-case comparison of different inter-organizational fields or network membership configurations to be undertaken. Researchers could complete this proposal using the inter-organizational *network* as the level of analysis rather than the inter-organizational *dyad*. A network-level correlates approach (which was discussed in Section 5.8.3 Inter-organizational Network Level of Analysis on page 138) would therefore require the application of

relational network questioning techniques, as specified by Calloway *et al.* (1993), in order to assess the accuracy of the respondents' data.

Attention should also be given to the specification and measurement of additional exogenous organizational variables, ideally those which have been identified as a result of this Ph.D. study. For instance, in Section 7.4.3 Theme 3: Respectability and Prestigiousness on page 256, it was argued that the dominant theme extracted from the case study analysis of building project BLD06 resulted in the identification of a dimension not included within the hypothesized structural equation model and not directly related to any of its theoretical constructs. This dimension was explained to be *project-related* reputations, and was generally defined as the extent to which construction-related organizations perceived the building project to be a prestigious example of design and construction and one that would present them with a certain amount of kudos within the construction industry.

Other dimensions could also be explored further; in particular, the inter-relationships between the exogenous organizational variables that were identified as a result of the structural equation modelling exercise (see Section 7.3 Results of Structural Equation Modelling Analysis on page 216). An analysis of this nature may lead to the identification of mediating variables, or in other words, the extent to which the independent variables affect the dependent variables through common mediating variables? Do such variables exist, if so, how do they relate to the exogenous and endogenous organizations variables?

Finally, scholars may like to consider exploring the measured variables of the professional status factor in much more detail. As professional status was found to be the most influential dimension upon the level of interdependence and therefore inter-organizational conflict between construction-related organizations, a focused examination of its indicators would be prudent. Examples of potential interest in this area include the extent to which the male/female differences and ethnicity of the boundary role representatives influence interdependence between organizations and inter-organizational conflict.

In concluding, for the UK construction industry to attain the level of performance revered by Latham (1994) and Egan (1998), it is essential that practitioners and scholars acquire a deeper understanding of inter-organizational relationships. Only by doing so will individual construction-related organizations be able to appreciate how different categories of relationships develop over time, for good or for bad, throughout the construction process, and how they can be effectively controlled in order to minimize the likelihood of dysfunctional social conflict arising. As Holmen *et al.* (2002) have recently stated in an article propounding the need for new research into construction industry inter-organizational relationships: “there is a need for acknowledging the possible variety of types of relationships which may exist or be developed, as well as a need for trying to gain more insight into what characterises these different types” (Holmen *et al.*, 2002: 717). Hence, focused research into inter-organizational conflict, such as this Ph.D. investigation, can only but assist Latham and Egan with their ultimate quest.

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**SOCIAL CONFLICT IN CONSTRUCTION-RELATED**  
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**A COMPARATIVE ANALYSIS AND STRUCTURAL EQUATION MODEL**

**VOLUME TWO OF TWO**

By

Allan Niel Osborne

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## 10 APPENDIX A: ATTITUDE MEASUREMENT SCALES

In this section three Likert scales are displayed. Likert scales are relatively overt, uni-dimensional measuring devices which allow respondents to place themselves on an attitude continuum for a particular statement. According to Oppenheim (1992), it is normal practice to have the continuum running from *strongly agree* to *agree*, *uncertain*, *disagree* and *strongly disagree*. These five positions are then given the simple numerical weightings of 5, 4, 3, 2 and 1 for scoring purposes. Likert scales were used during this study in order to measure five factors or independent variables, viz. INTERDEPENDENCE (F<sub>9</sub>), STRUCTURAL CONFLICT (F<sub>10</sub>), OPERATING CONFLICT (F<sub>11</sub>), CLIENT REPUTE (F<sub>1</sub>) and ORGANIZATIONAL REPUTE (F<sub>7</sub>).

### 10.1 LIKERT SCALE A

Likert Scale A, which is illustrated below in Table 10.1 on page 307, was used during this study to measure the factors (or independent variables) representing CLIENT REPUTE (F<sub>1</sub>) and ORGANIZATIONAL REPUTE (F<sub>7</sub>). These factors are described in detail in Chapter 6, but for the time being, their definitions are summarized below.

CLIENT REPUTE (F<sub>1</sub>) – client reputation or respectability refers to the degree to which client organizations possess the necessary qualities or attributes to engender project-related confidence and success among their employed interdependent organizations. Respectable clients are expected to facilitate amicable social relationships between the organizations that are jointly providing them with professional services and products. For further information regarding this factor's conceptualization, see Section 6.3.4 Client Reputation (F1) on page 173.

ORGANIZATIONAL REPUTE (F<sub>7</sub>) – organizational reputation or respectability refers to the degree to which an organization possesses the necessary qualities or attributes to engender project-related confidence among its interdependent associates. Social interaction between organizations is a consequence of their necessity to fulfil specific functions, and the effectiveness of such exchange is dependent upon their level of

organizational prestige or repute. For additional information regarding this factor's conceptualization, see Section 6.3.10 ORGANIZATIONAL REPUTE (F<sub>7</sub>) on page 191.

**Table 10.1 Likert Scale A**

<b>Very Reputable</b>	<b>Reputable</b>	<b>Neither Reputable nor Disreputable</b>	<b>Not Very Reputable</b>	<b>Not At All Reputable</b>
5	4	3	2	1

## 10.2 LIKERT SCALE B

Likert Scale B, which is illustrated in Table 10.2 immediately below, was used during this study to measure the factor (or independent variable) representing INTERDEPENDENCE (F<sub>9</sub>). This factor is described in detail in Chapter 6, but for the time being, its definition is summarized below.

INTERDEPENDENCE (F<sub>9</sub>) – interdependence refers to the extent to which two or more organizations are provisionally or permanently conjoined as a consequence of mutual exchanges or commitments on a continuing basis for their attainment of mutual or exclusive organizational goals. There is a high probability of social conflict arising between organizations in establishing interdependence. For more detailed information regarding this factor's conceptualization, see Section 6.3.1 Interdependence (F<sub>9</sub>) on page 164.

**Table 10.2 Likert Scale B**

<b>Several Times Daily</b>	<b>Once Daily</b>	<b>Several Times Weekly</b>	<b>Once Weekly</b>	<b>Several Times Monthly</b>	<b>Once Monthly</b>	<b>Less Than Once Monthly</b>
7	6	5	4	3	2	1



### 10.3 LIKERT SCALE C

Likert Scale C, which is illustrated in Table 10.3 immediately below, was used during this study to measure the factors (or independent variables) representing STRUCTURAL CONFLICT (F<sub>10</sub>) and OPERATING CONFLICT (F<sub>11</sub>). These factors are described in detail in Chapter 6, but for the time being, their definitions are summarized below.

STRUCTURAL CONFLICT (F<sub>10</sub>) – occurs over the basic and cultural identities and responsibilities that define an inter-organizational relationship and reflects an inability to establish or maintain the basic rules or principles that govern the relationship. It is the result of external constraints that influence the purposes and behaviour of each organization in its approach to another. For extra information regarding this factor's conceptualization, see Section 6.3.2 Structural Conflict (F<sub>10</sub>) on page 166.

OPERATING CONFLICT (F<sub>11</sub>) – occurs between organizations over the co-ordination of operating procedures and activities, as opposed to the technostuctural aspects of their interdependent linkage. It normally occurs when one organization disputes the position of another over a fundamental yet mutual concern but makes little or nor attempt to influence or change the other's jurisdiction over the situation. For more information regarding this factor's conceptualization, see Section 6.3.3 Operating Conflict (F<sub>11</sub>) on page 168.

**Table 10.3 Likert Scale C**

Very Often	Often	Quite Often	Rarely	Never
5	4	3	2	1

## 11 APPENDIX B: CONSTRUCTION-RELATED PROFESSIONAL SERVICES

In this section twelve dummy-coded manifest variables (and three observable indicators) are tabulated which represent the list of construction-related professional services that an organization could undertake for a client. The list was derived from documents that were obtained from all of the organizations participating in this study prior to the data collection exercise being conducted. For further information regarding the role of the construction-related professional services' dummy-coded manifest variables and observable indicators to the operationalization of the PROFESSIONAL SERVICES ( $F_2$ ) factor, see Section 6.3.5 PROFESSIONAL SERVICES ( $F_2$ ) on page 177.

**Table 11.1 Professional Services and Corresponding Variables**

<b>Observable Indicators</b>	<b>Professional Services (Dummy-coded Manifest Variables)</b>
Design services ( $V_2$ )	Building design ( $V_{2A}$ ) Electrical engineering design ( $V_{2B}$ ) Mechanical engineering design ( $V_{2C}$ ) Structural engineering design ( $V_{2D}$ )
Construction services ( $V_3$ )	Building construction ( $V_{3A}$ ) Building and site control ( $V_{3B}$ ) Health and safety ( $V_{3C}$ ) Quantity surveying ( $V_{3D}$ )
Property services ( $V_4$ )	Building surveying ( $V_{4A}$ ) Financial management ( $V_{4B}$ ) Project evaluation and development ( $V_{4C}$ ) Project management ( $V_{4D}$ )

## 12 APPENDIX C: CI/SfB CLASSIFICATION OF BUILDING TYPES

In this section ten tables are presented which collectively illustrate the CI/SfB<sup>1</sup> classification of building types according to facility/function. During this study, respondents were asked to indicate if their organization was involved in any of a finite series of output or industrial sectors within the field of the construction industry in the north-eastern region of England. The nine *new-build* categories of building types defined by the CI/SfB framework were used to formulate a finite list of output sectors to which a construction-related organization could provide a service to a client. For additional information regarding the conceptualization of the OUTPUT SECTORS (F<sub>3</sub>) factor, see Section 6.3.6 OUTPUT SECTORS (F<sub>3</sub>) on page 179.

**Table 12.1 CI/SfB 1: Utilities and Civil Engineering Facilities**

Reference	Building Type
CI/SfB 114	Railway stations
CI/SfB 116	Railway control buildings (lineside buildings)
CI/SfB 116.2	Railway control buildings (railway relay buildings)
CI/SfB 125	Car parks (multi-storey)
CI/SfB 126	Petrol stations
CI/SfB 126.5	Traffic control buildings
CI/SfB 127	Road vehicle storage/repair buildings (including car
CI/SfB 127.1	Garages (domestic)
CI/SfB 134	Port and harbour buildings
CI/SfB 136	Boat control buildings
CI/SfB 144	Air transport terminals
CI/SfB 146	Air traffic control buildings
CI/SfB 147	Aircraft storage/repair buildings
CI/SfB 152	Radio buildings
CI/SfB 154.1	Telephone exchanges
CI/SfB 154.3	Telephone engineering centres, TSCVs
CI/SfB 156	Transmitting/receiving stations
CI/SfB 162.1	Generator houses, power stations, etc.
CI/SfB 162.2	Sub-stations (electricity transmission)
CI/SfB 177	Mortuaries, morgues

<sup>1</sup> CI/SfB stands for Construction Index/Samarbetskommitten for Byggnadsfrågor, a Scandinavian system of classification originally set up in 1959 and specially designed for the construction sector. This system is now generally used worldwide for any technical and trade literature in the broad construction area.

**Table 12.2 CI/SfB 2: Industrial Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 265	Livestock buildings - farms (pigpens, milking parlours, etc.)
CI/SfB 278	Builders yards, Local Authority maintenance depots
CI/SfB 282	Factories
CI/SfB 282.1	Advanced factories
CI/SfB	Advanced factories/offices (mixed facilities)
CI/SfB 282.2	Purpose built factories
CI/SfB	Purpose built factories/offices (mixed facilities)
CI/SfB 284	Warehouses/stores
CI/SfB 284.1	Advanced warehouses/stores
CI/SfB 284.2	Purpose built warehouses/stores
CI/SfB 284.5	Cold stores/refrigerated stores

**Table 12.3 CI/SfB 3: Administrative, Commercial and Protective Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 314.1	County, city, town halls
CI/SfB 315	Local administration buildings (job centres, etc.)
CI/SfB 317	Law courts
CI/SfB 320	Offices
CI/SfB 320.1	Offices with shops, banks, flats, etc.
CI/SfB 338	Banks/Building Society branches
CI/SfB 341.1	Retail warehouses
CI/SfB 341.5	Market buildings providing accommodation for pens, stalls, etc.
CI/SfB 342	Shopping centres
CI/SfB 344	Hypermarkets, supermarkets
CI/SfB 345	Shops
CI/SfB 345.1	Shops with domestic, office accommodation
CI/SfB 372	Fire stations
CI/SfB 372.6	Fire training buildings
CI/SfB 373	Ambulance stations
CI/SfB 373.1	Ambulance administration/control buildings
CI/SfB 374	Police stations
CI/SfB 374.1	Police administration/control buildings
CI/SfB 375	Military buildings
CI/SfB	Territorial Army Centres
CI/SfB 376.2	Closed prisons
CI/SfB 376.5	Reformatories, borstals, secure residential units for children

**Table 12.4 CI/SfB 4: Health and Welfare Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 411.1	Hospital teaching centres
CI/SfB 412	General hospitals, cottage hospitals
CI/SfB 413	Mental, psychiatric hospital facilities
CI/SfB 413.1	Psychiatric units
CI/SfB	Psycho-geriatric units
CI/SfB 414.1	Ear, nose and throat units
CI/SfB 415	Maternity, gynaecological hospital facilities
CI/SfB 415.7	Genito-urinary facilities
CI/SfB 416	Paediatric, geriatric hospital facilities
CI/SfB 416.2	Geriatric units
CI/SfB 417.1	Diagnosis excluding radiography (x-ray)
CI/SfB 417.2	Surgery including operating theatres
CI/SfB 417.4	Hospital laboratories
CI/SfB	Pathology laboratories
CI/SfB 417.5	Occupational therapy, physiotherapy, hydrotherapy
CI/SfB 417.7	Chemotherapy including pharmacies, dispensaries
CI/SfB	Pharmacies
CI/SfB	Radiotherapy units (including linear accelerators)
CI/SfB	Specialist facilities
CI/SfB 418.1	Ward blocks
CI/SfB 418.2	Outpatients/Casualty units
CI/SfB 418.3	Intensive care/Acute wards
CI/SfB 418.8	Sterile stores, sterilisation units
CI/SfB 421	Health centres, clinics, group practice surgeries
CI/SfB 425	Welfare consultation centres
CI/SfB 441	Observation and assessment centres
CI/SfB 442	Nursing homes, convalescent homes, short stay medical homes
CI/SfB 443	Homes for chronic invalids, addicts, etc. (hospices)
CI/SfB 444	Homes for mentally handicapped/deficient
CI/SfB 445.1	Homes for physically handicapped
CI/SfB 446	Children's homes
CI/SfB 447	Old people's homes
CI/SfB 448	Day centres

**Table 12.5 CI/SfB 5: Recreational Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 511	Canteens, refectories
CI/SfB 512	Restaurants
CI/SfB 517	Public houses, licensed premises
CI/SfB 524	Theatres
CI/SfB 524.5	Drama ancillary buildings
CI/SfB 525	Cinemas
CI/SfB 532	Community centres
CI/SfB 532.1	General purpose halls
CI/SfB 532.2	Visitors' centres
CI/SfB 534	Clubs, youth clubs, student unions, etc.
CI/SfB 541	Covered swimming pools
CI/SfB 562.1	Sports centres/recreational centres
CI/SfB	Sports centres/recreational centres including swimming pools
CI/SfB	Gymnasias/sports halls
CI/SfB	Squash courts
CI/SfB 564.1	Stadia, sports grounds
CI/SfB 568.1	Pavilions and sports club houses

**Table 12.6 CI/SfB 6: Religious Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 630	Churches, chapels
CI/SfB 640	Mission halls, meeting houses
CI/SfB 650	Temples, mosques, synagogues
CI/SfB 670.1	Crematoria

**Table 12.7 CI/SfB 7: Educational, Scientific and Information Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 710	Schools
CI/SfB 711	Nursery schools/crèches
CI/SfB 712	Primary schools
CI/SfB 712.1	Middles schools
CI/SfB 712.8	Primary schools - mixed facilities
CI/SfB	Primary/middle schools
CI/SfB 713	Secondary schools (high schools)
CI/SfB 713.1	Secondary schools - specialized teaching blocks
CI/SfB 713.8	Secondary schools - mixed facilities
CI/SfB 714	Sixth form/tertiary colleges
CI/SfB 717	Special schools
CI/SfB 717.2	Schools for the mentally handicapped
CI/SfB 717.3	Schools for the physically handicapped
CI/SfB 721	Universities
CI/SfB 721.2	University - specialized teaching blocks
CI/SfB 722	Colleges
CI/SfB 722.2	Colleges - specialized teaching blocks
CI/SfB 727	Adult education facilities
CI/SfB 727.1	Adult education facilities for the mentally handicapped
CI/SfB 731.1	Research facilities
CI/SfB 732	Laboratories
CI/SfB 756	Museums, planetaria
CI/SfB 760	Libraries
CI/SfB 762	Public libraries
CI/SfB 763	School/College/University libraries
CI/SfB 764	Special libraries
CI/SfB 766	Computer buildings

**Table 12.8 CI/SfB 8: Residential Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 810	Housing, mixed developments
CI/SfB 810.1	Estate housing
CI/SfB 816	Flats (apartments)
CI/SfB 820.1	'One-off' housing, detached housing
CI/SfB 841	Housing provided in connection with other facilities
CI/SfB 843	Sheltered housing
CI/SfB 852	Hotels
CI/SfB 856.1	Dormitories
CI/SfB 856.2	Student's residences, halls of residence, etc.
CI/SfB 856.3	Nurses' residences
CI/SfB 856.4	Staff residential accommodation
CI/SfB 856.5	Barracks, mess accommodation, section houses, etc.
CI/SfB 856.7	Youth hostels
CI/SfB 856.8	Short stay hostels for homeless, etc.

**Table 12.9 CI/SfB 9: Common Facilities**

<b>Reference</b>	<b>Building Type</b>
CI/SfB 916	Conference centres
CI/SfB 922	Staff rooms, common rooms, rest rooms, etc.
CI/SfB 931	Kitchens
CI/SfB 931.1	Kitchens with dining facilities
CI/SfB 941.1	Public conveniences
CI/SfB 941.2	Toilet blocks - private facilities
CI/SfB 943	Utility blocks (washing and toilet facilities)
CI/SfB 952	Laundries
CI/SfB 971.2	Boiler houses
CI/SfB	Boiler houses, including boiler plant



**Table 12.10 CI/SfB 10: Rehabilitation and Conversion**

Reference	Building Type
CI/SfB 157.1	Post offices
CI/SfB 157.2	Sorting offices
CI/SfB 282	Factories
CI/SfB 282.12	Advanced factories/offices (mixed facilities)
CI/SfB 282.2	Purpose built factories
CI/SfB 284	Warehouses/stores
CI/SfB 284.2	Purpose built warehouses/stores
CI/SfB 317	Law courts
CI/SfB 320	Offices
CI/SfB 320.1	Offices with shops, banks, flats, etc.
CI/SfB 338	Banks/building society branches
CI/SfB 340	Mixed commercial developments
CI/SfB 343	Department stores
CI/SfB 345	Shops
CI/SfB 374	Police stations
CI/SfB 412	General hospitals, GP hospitals, cottage hospitals
CI/SfB 413	Mental, psychiatric hospital facilities
CI/SfB 418.1	Ward blocks
CI/SfB 421	Health centres, clinics, group practice surgeries
CI/SfB 447	Old people's homes
CI/SfB 511	Canteens, refectories
CI/SfB 512	Restaurants
CI/SfB 517	Public houses/licensed premises
CI/SfB 524	Theatres
CI/SfB 532	Community centres
CI/SfB 532.1	General purpose halls
CI/SfB 532.2	Visitors' centres
CI/SfB 534	Clubs, youth clubs, student unions, etc.
CI/SfB 630	Churches, chapels
CI/SfB 710	Schools
CI/SfB 712	Primary schools
CI/SfB 713	Secondary schools (high schools)
CI/SfB 713.1	Secondary schools - specialized teaching blocks
CI/SfB 727	Adult education facilities
CI/SfB 762	Public libraries
CI/SfB 810	Housing, mixed developments
CI/SfB 810.1	Estate housing
CI/SfB 816	Flats (apartments)
CI/SfB 856.8	Short stay hostels for homeless, etc.
CI/SfB 931	Kitchens
CI/SfB 941.1	Public conveniences

## 13 APPENDIX D: CONSTRUCTION-RELATED OUTPUT SECTORS

In this section nine dummy-coded manifest variables (and two observable indicators) are tabulated which collectively illustrate the finite list of industrial or output sectors to which a construction-related organization could provide a service to a client.

During this study, respondents were asked to indicate if their organization was involved in any of the output sectors that are listed immediately below in Table 13.1 within the field of the construction industry in the north-eastern region of England. For extra information regarding the conceptualization of the OUTPUT SECTORS (F<sub>3</sub>) factor, see Section 6.3.6 OUTPUT SECTORS (F<sub>3</sub>) on page 179.

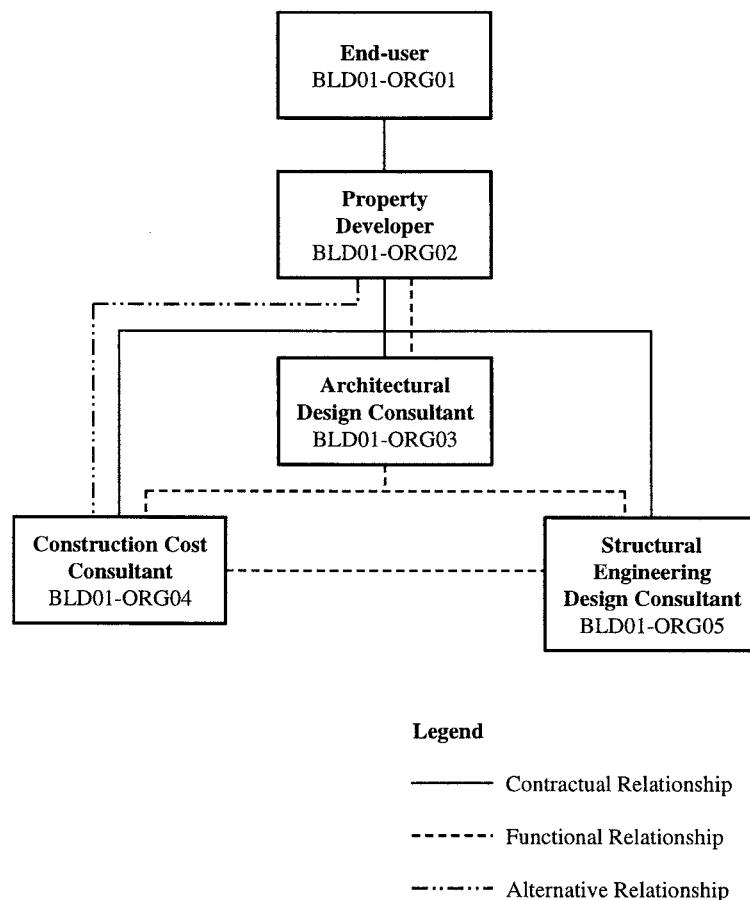
**Table 13.1 Output Sectors and Corresponding Variables**

Observable Indicators	Output Sectors (Dummy-coded Manifest Variables)
Productive sectors (V5)	Utilities and civil engineering facilities (V <sub>5A</sub> ) Industrial facilities (V <sub>5B</sub> ) Administrative, commercial and protective facilities (V <sub>5C</sub> ) Health and welfare facilities (V <sub>5D</sub> ) Common facilities (V <sub>5E</sub> )
Maintenance sectors (V6)	Recreational facilities (V <sub>6A</sub> ) Religious facilities (V <sub>6B</sub> ) Educational, scientific and information facilities (V <sub>6C</sub> ) Residential facilities (V <sub>6D</sub> )

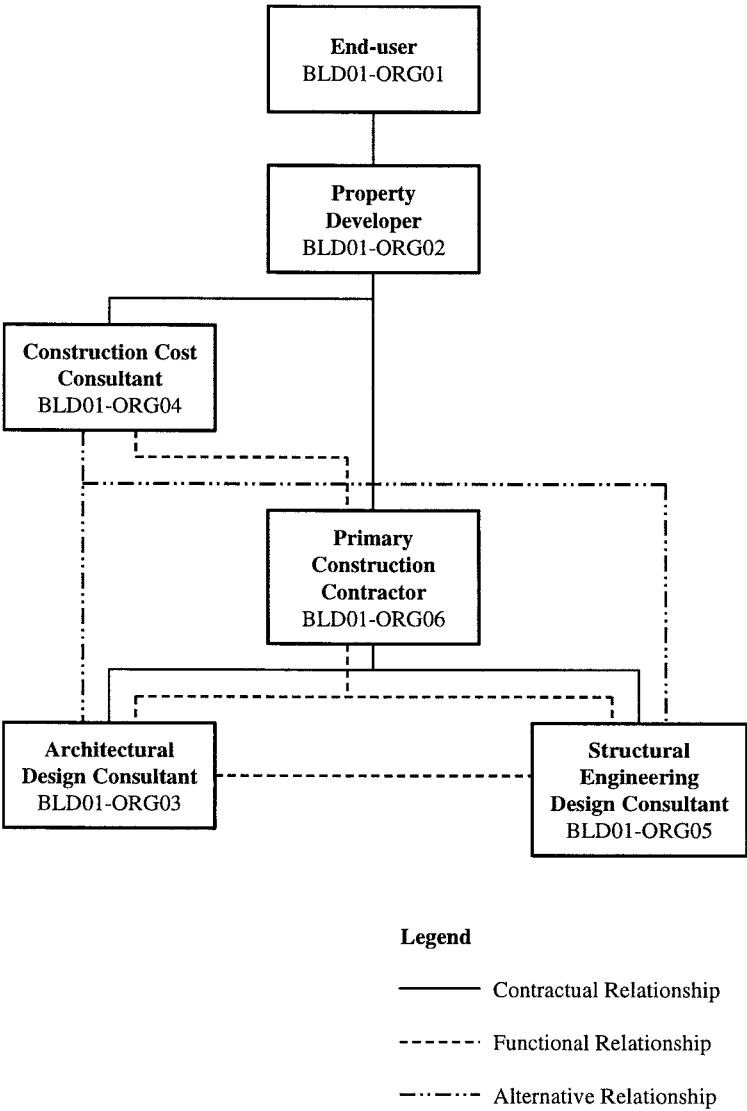
## APPENDIX E: MODELS OF INTER-ORGANIZATIONAL RELATIONSHIPS

In this section twelve hierarchical organization charts are presented. Each chart represents a standardized diagrammatic model of the linkages that existed between the construction-related organizations located within an inter-organizational collectivity that was investigated during this study. Three categories of inter-organizational linkage are illustrated in the charts, viz. *alternative*, *contractual* and *functional* relationships. These categories reflect Masterman's (1992) methodology for simplifying and presenting inter-organizational relationships. For detailed information regarding the conceptualization of inter-organizational linkages and their relevance to the operationalization of the POSITIONAL POWER ( $F_4$ ) factor, see Section 6.3.7 POSITIONAL POWER ( $F_4$ ) on page 182.

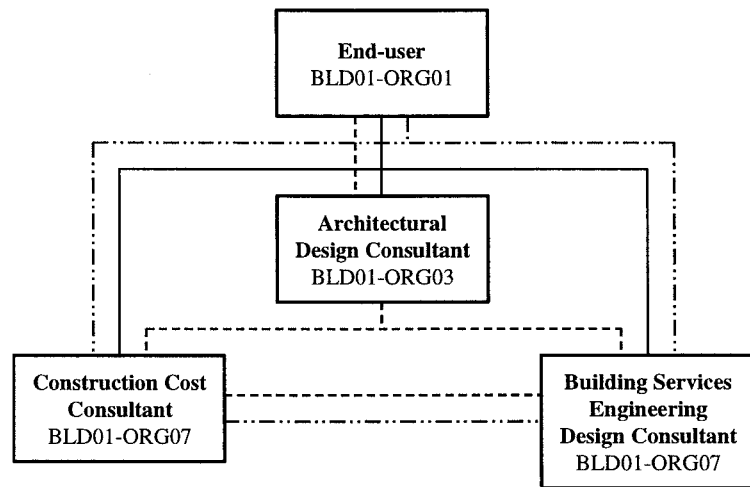
**Figure 14.1 Inter-organizational Relationships during Building Project 1 New-build Design Sub-process (BLD01-NBDSP)**



**Figure 14.2** Inter-organizational Relationships during Building Project 1  
New-build Construction Sub-process (BLD01-NBCSP)



**Figure 14.3 Inter-organizational Relationships during Building Project 1 Fit-out Design Sub-process (BLD01-FODSP)**



**Legend**

— Contractual Relationship

- - - Functional Relationship

- · - · - Alternative Relationship

**Figure 14.4    Inter-organizational Relationships during Building Project 1  
Fit-out Construction Sub-process (BLD01-FOCSP)**

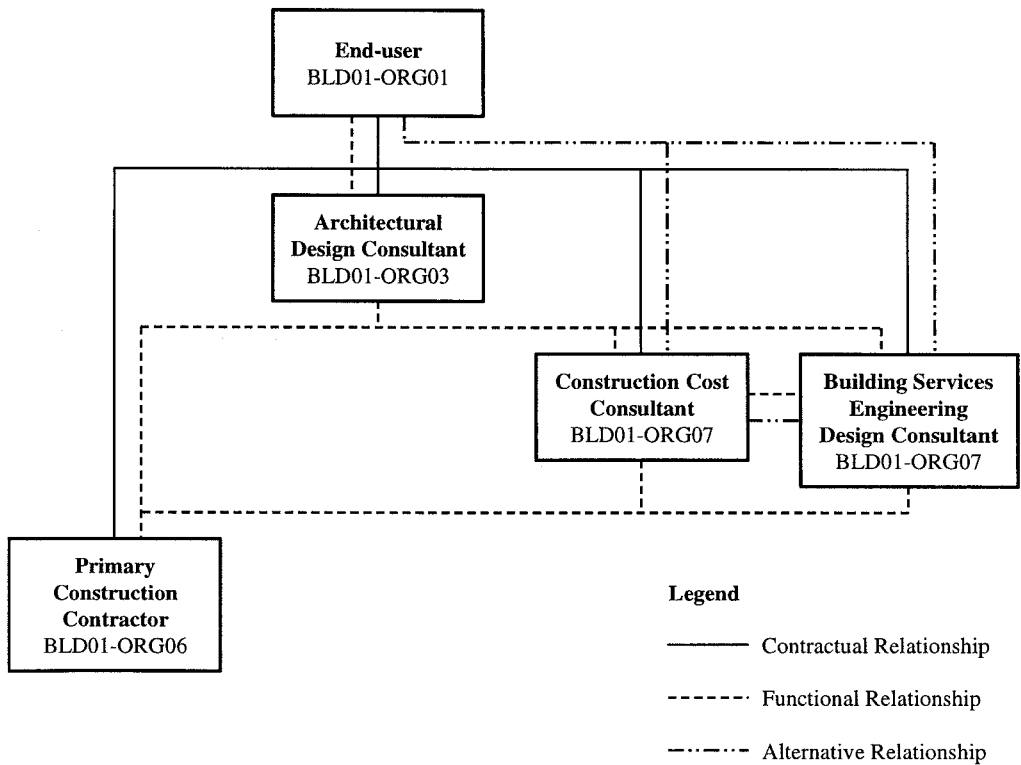


Figure 14.5 Inter-organizational Relationships during Building Project 2 New-build Design Sub-process (BLD02-NBDSP)

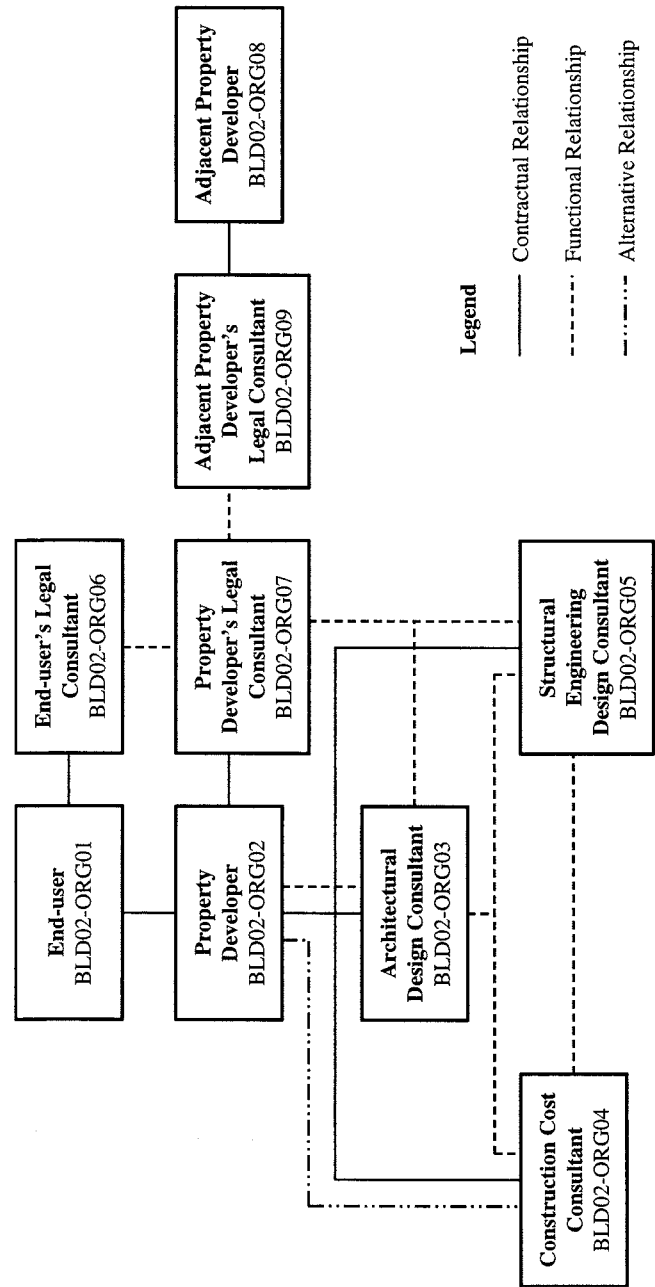
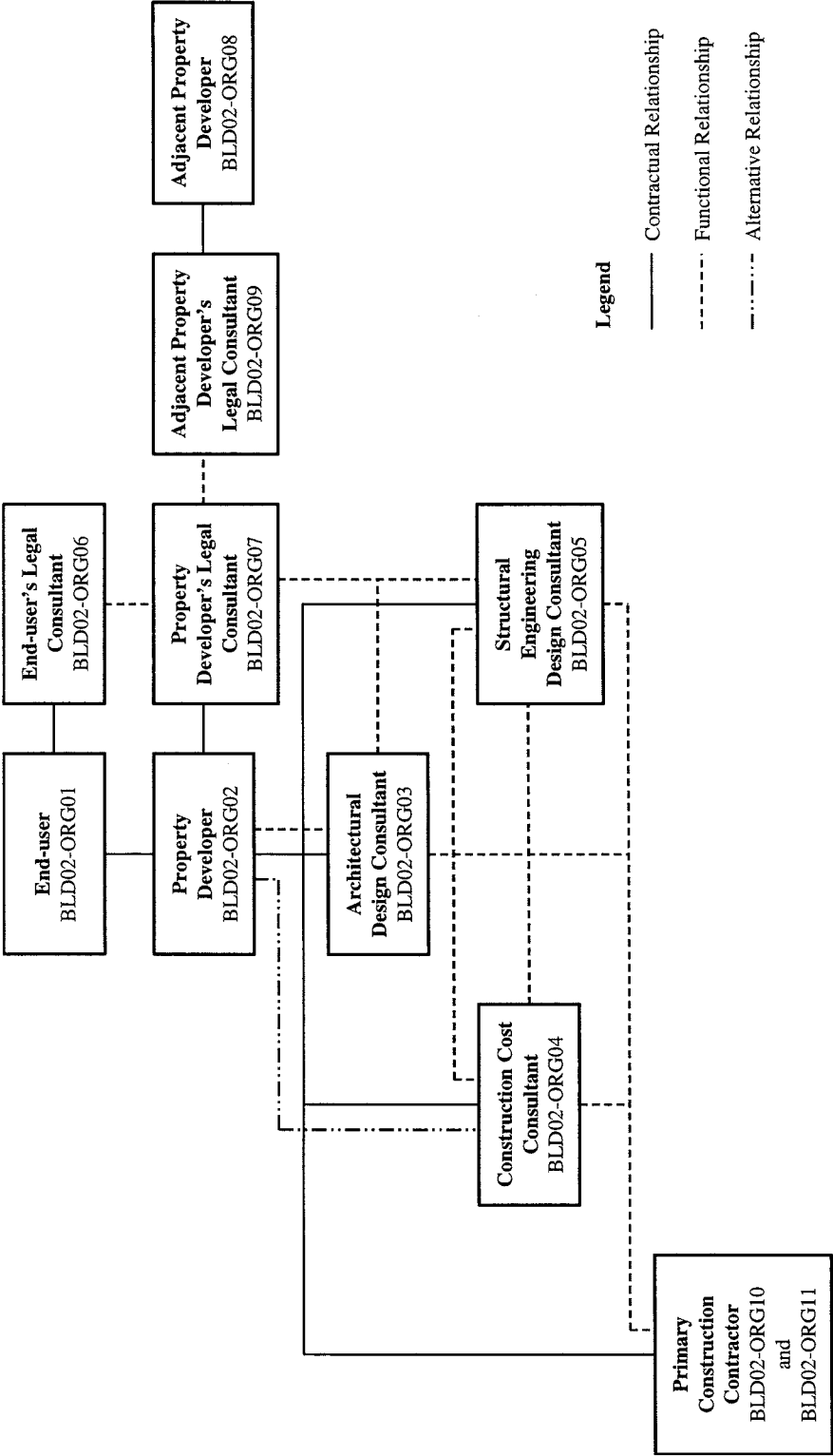
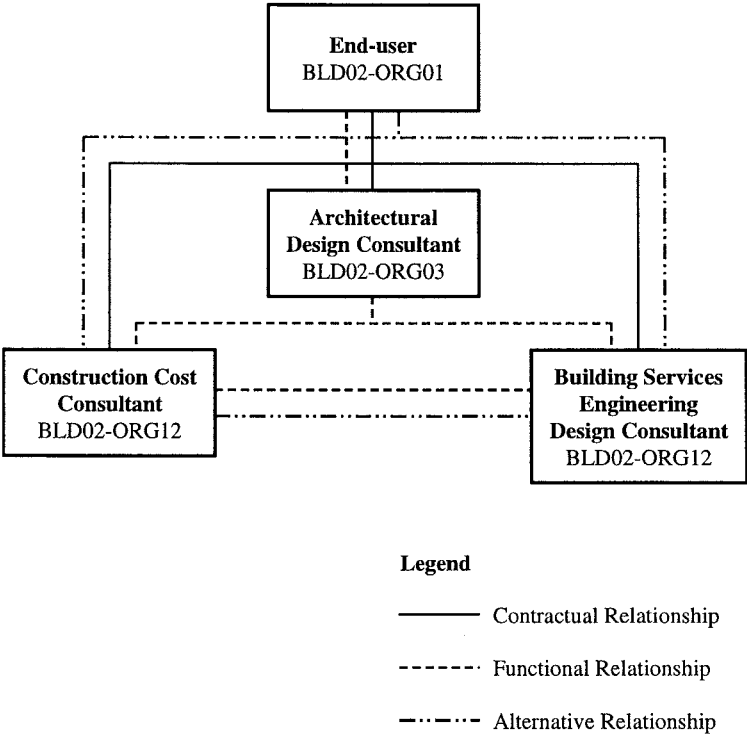


Figure 14.6 Inter-organizational Relationships during Building Project 2 New-build Construction Sub-process (BLD02-NBCSP)

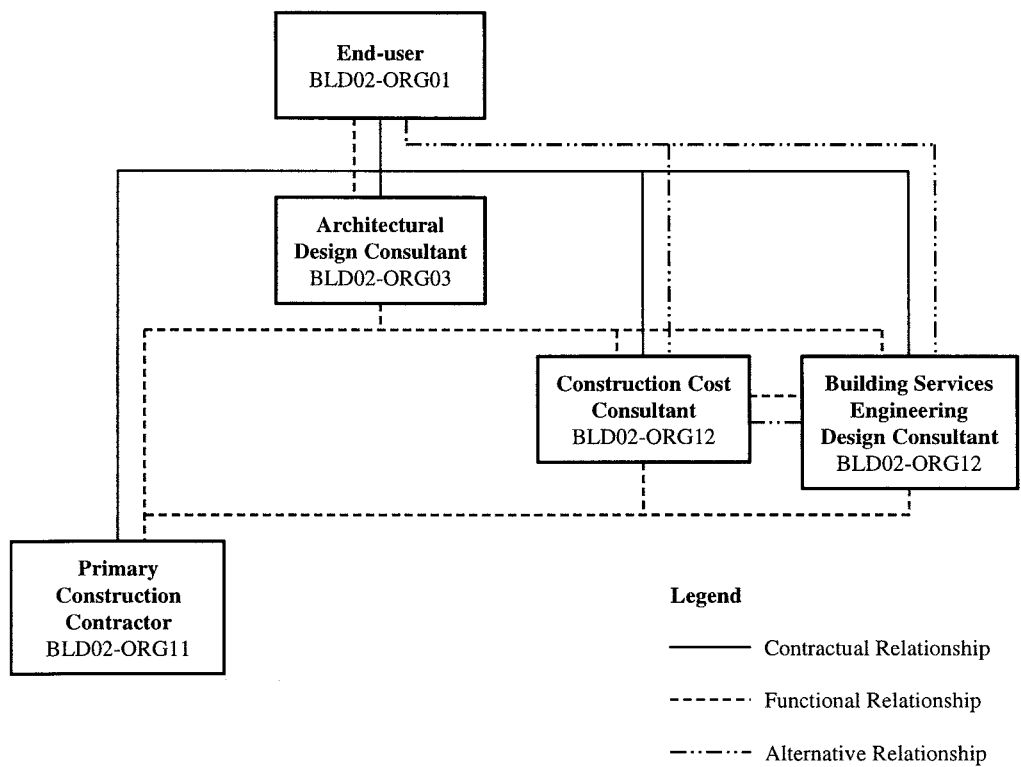




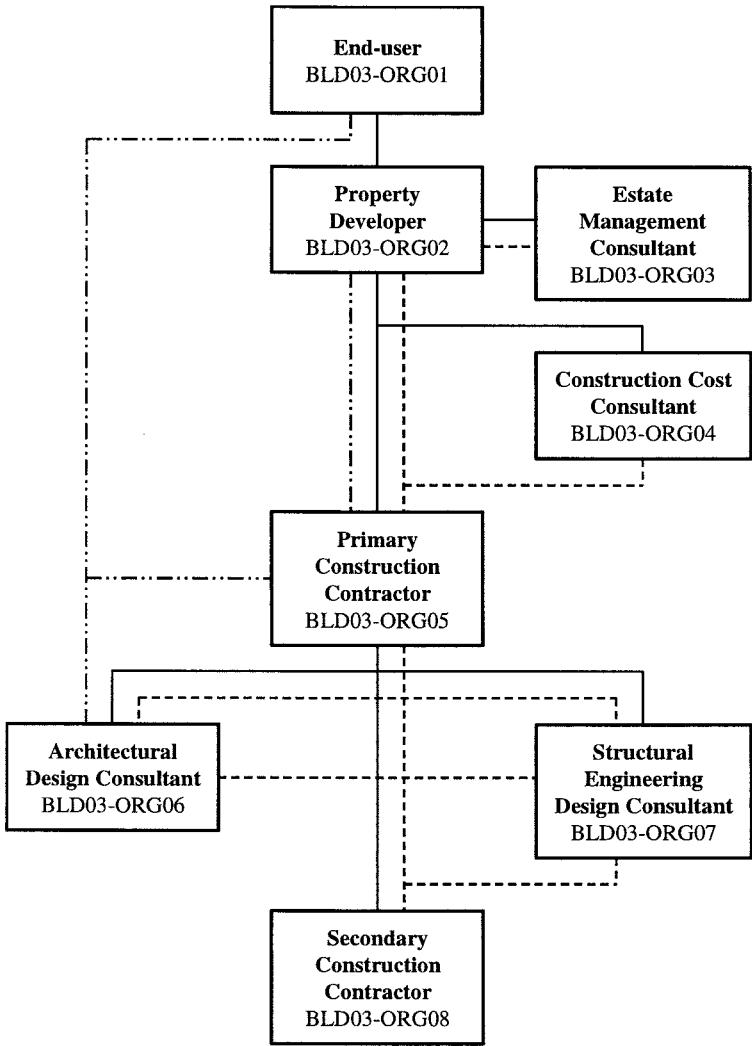
**Figure 14.7** Inter-organizational Relationships during Building Project 2 Fit-out Design Sub-process (BLD02-FODSP)



**Figure 14.8** Inter-organizational Relationships during Building Project 2  
Fit-out Construction Sub-process (BLD02-FOCSP)



**Figure 14.9** Inter-organizational Relationships during Building Project 3  
New-build Construction Sub-process (BLD03-NBCSP)



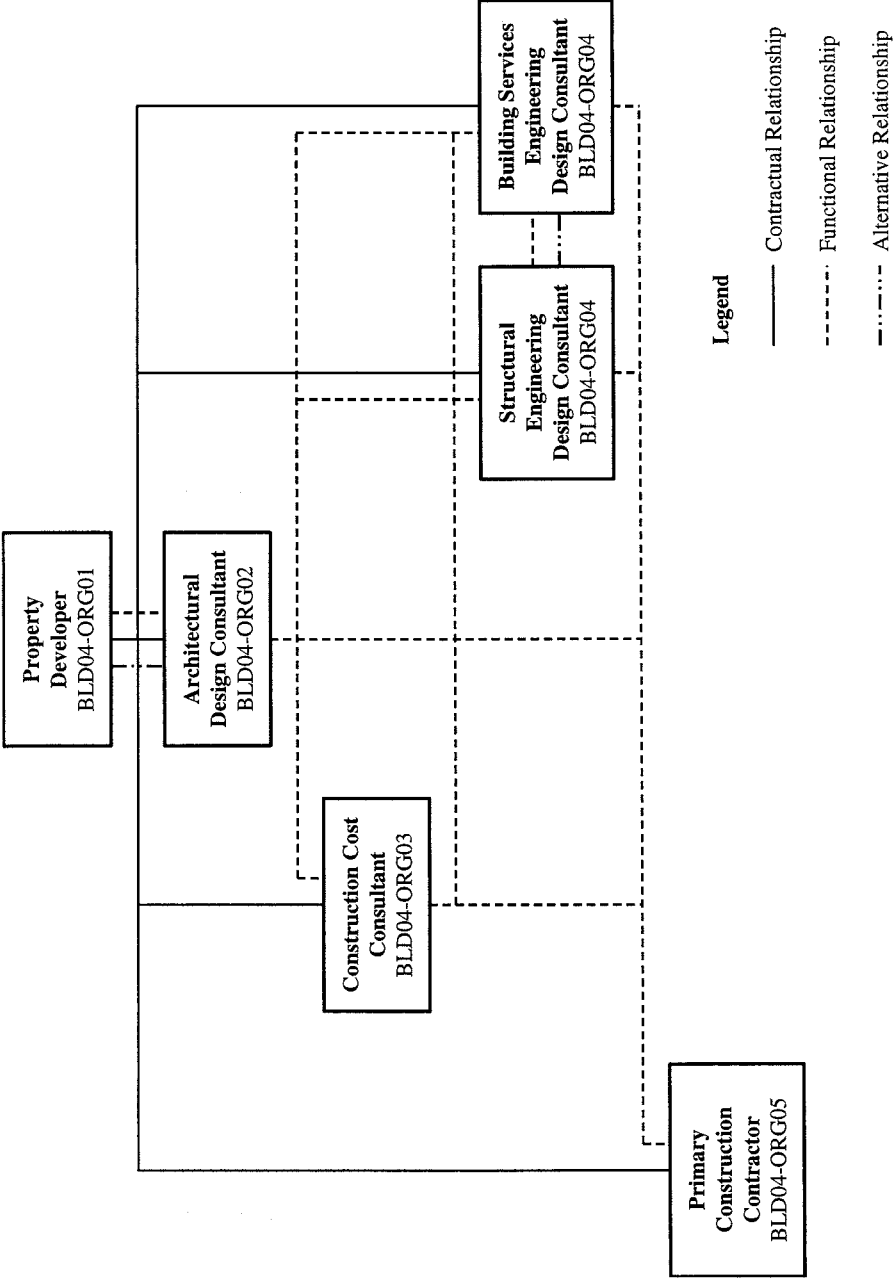
**Legend**

———— Contractual Relationship

----- Functional Relationship

- · - · - Alternative Relationship

Figure 14.10 Inter-organizational Relationships during Building Project 4 New-build Construction Sub-process (BLD04-NBCSP)



**Figure 14.11 Inter-organizational Relationships during Building Project 5  
New-build Construction Sub-process (BLD05-NBCSP)**

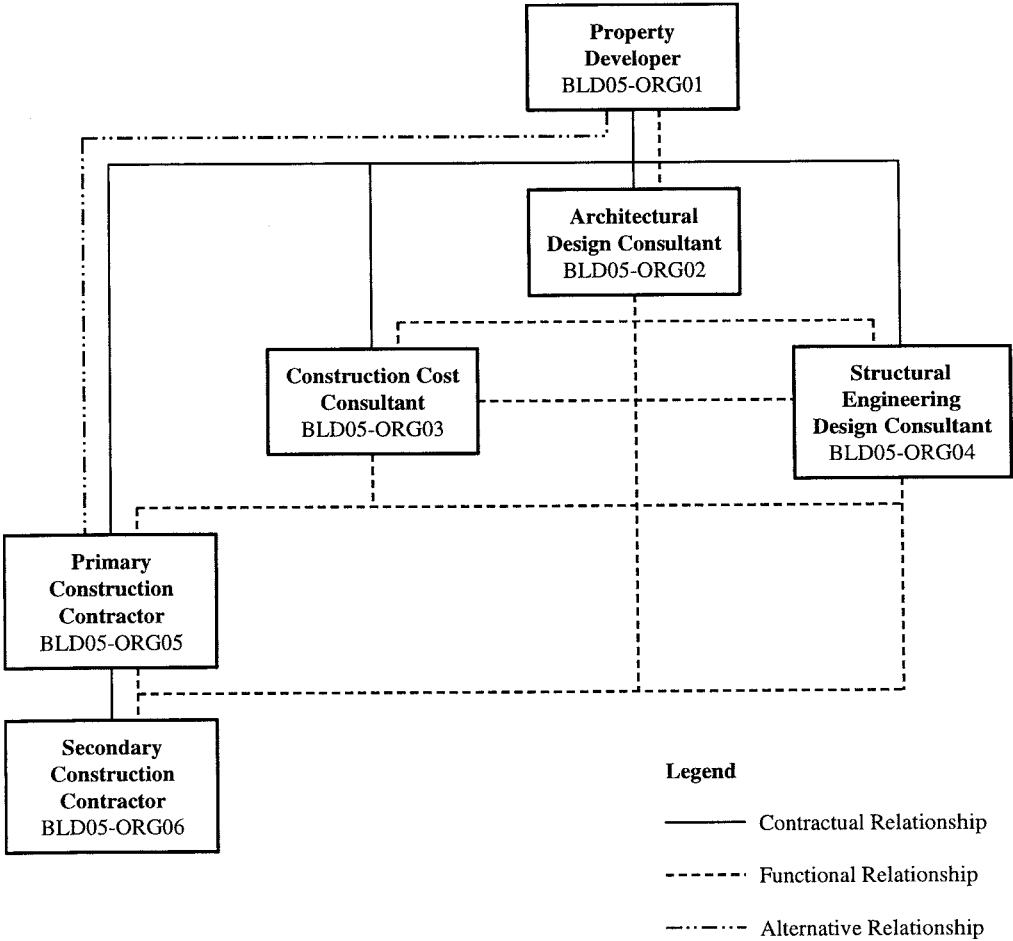
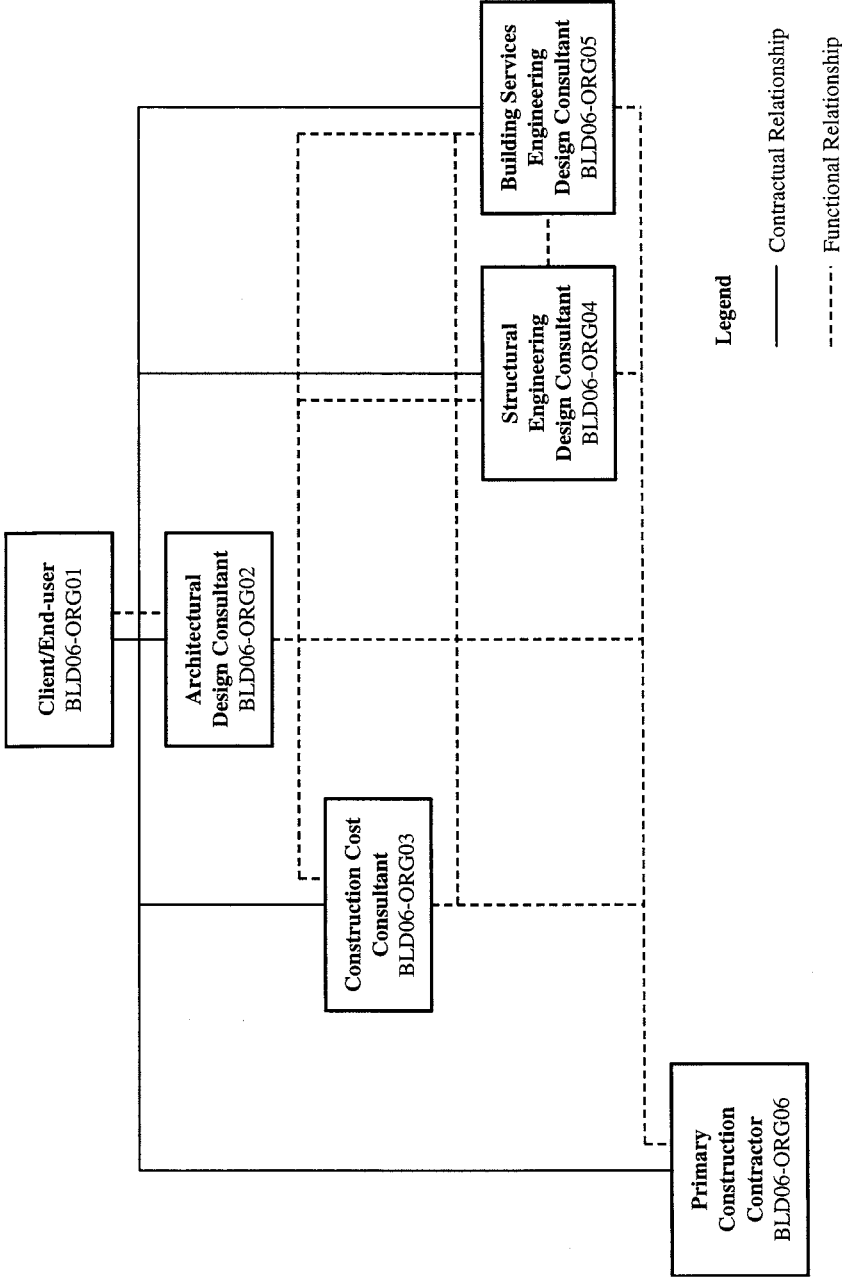


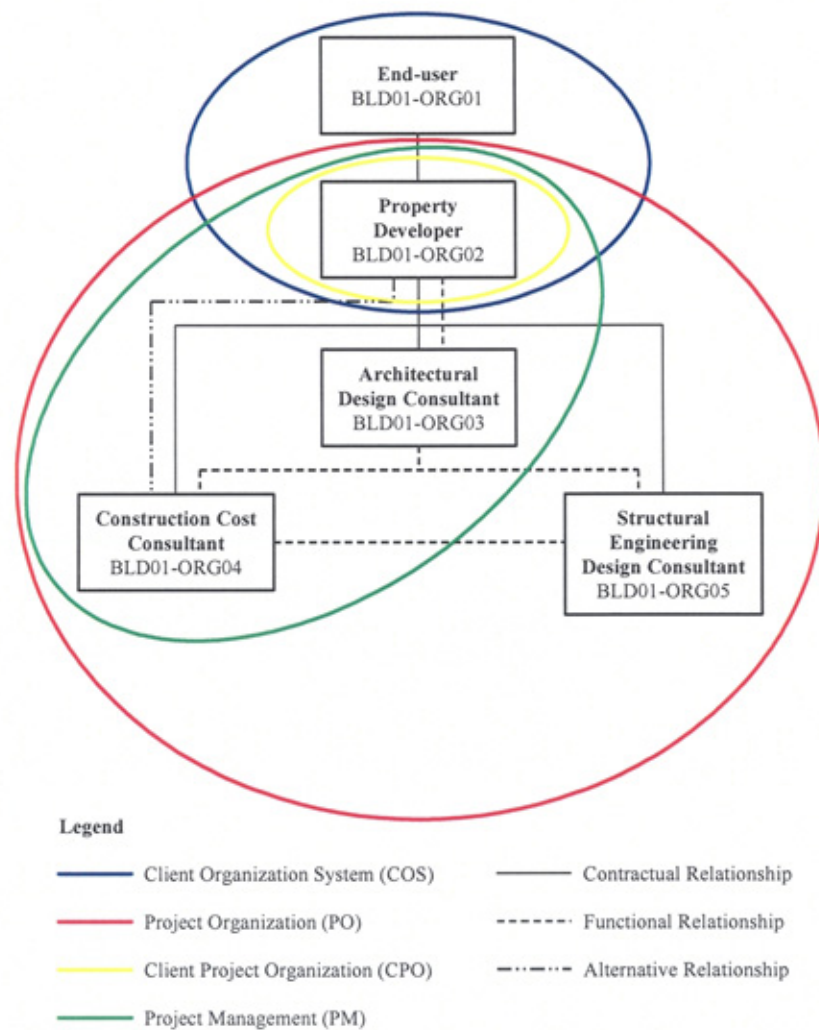
Figure 14.12 Inter-organizational Relationships during Building Project 6 New-build Construction Sub-process (BLD06-NBCSP)



## 15. APPENDIX F: MODELS OF CONSTRUCTION PROJECT ORGANIZATIONS

In this section eight construction project organization models are presented. Each model illustrates a particular inter-organizational collectivity that was investigated during this study along with the construction-related organizations that together form a specific type of component organization. The component organizations are defined by different coloured ellipses. For more information regarding the conceptualization of component organizations and their relevance to the operationalization of the POSITION POWER ( $F_4$ ) factor, see Section 6.3.7 POSITIONAL POWER ( $F_4$ ) on page 182.

**Figure 15.1** Component Organizations during Building Project 1 New-build Design Sub-process (BLD01-NBDSP)



**Figure 15.2** Component Organizations during Building Project 1 New-build Construction Sub-process (BLD01-NBCSP)

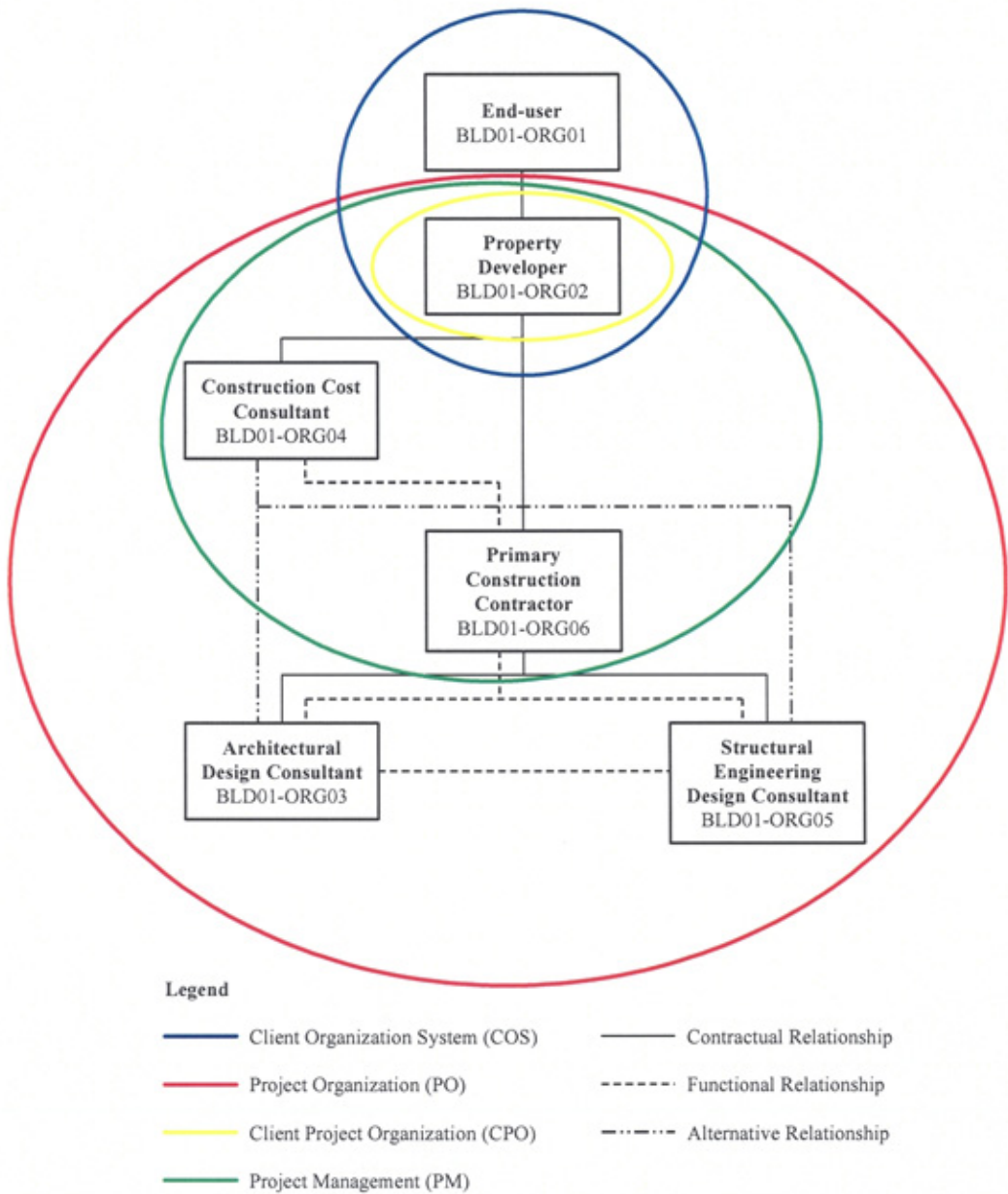




Figure 15.3 Component Organizations during Building Project 2 New-build Design Sub-process (BLD02-NBDSP)

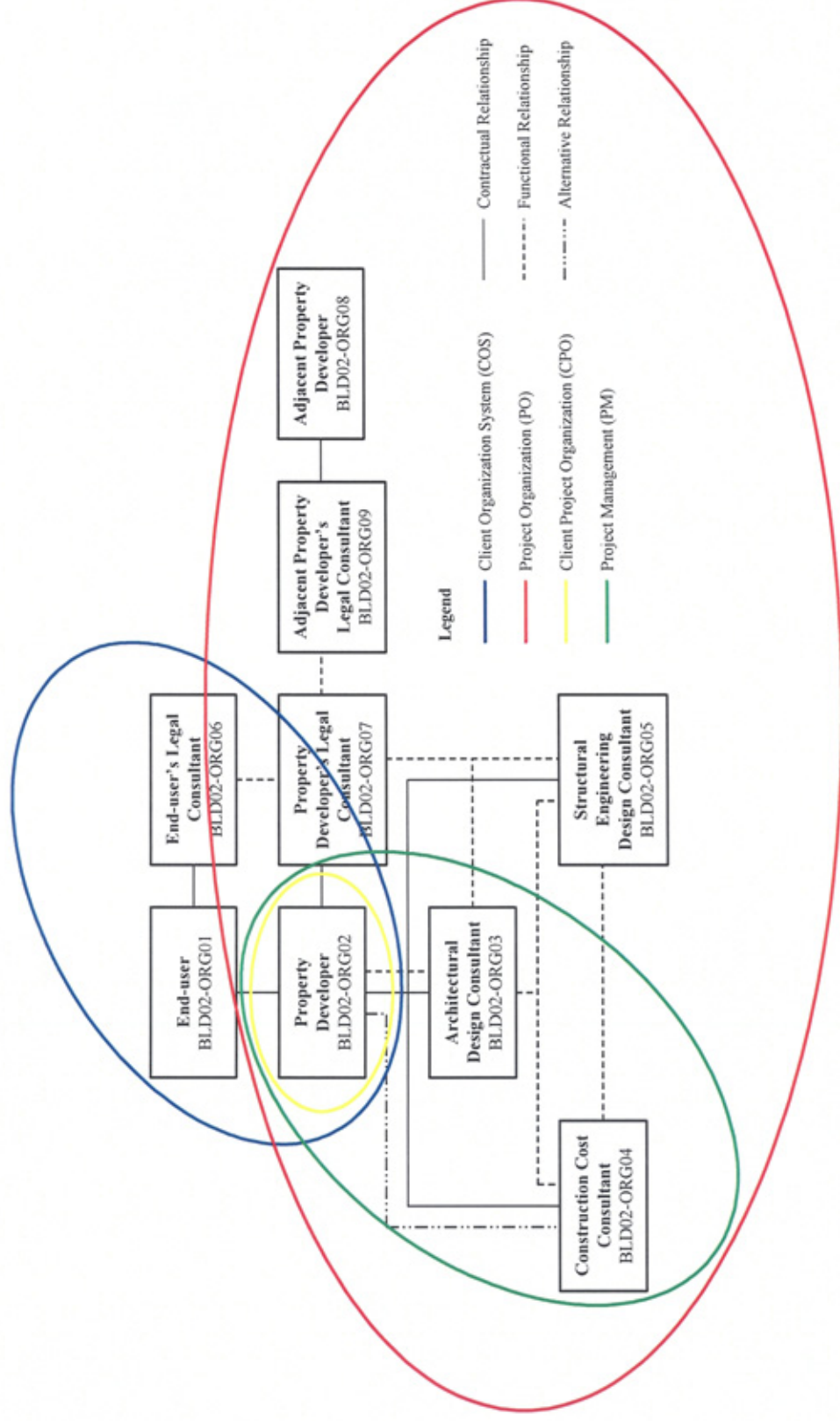
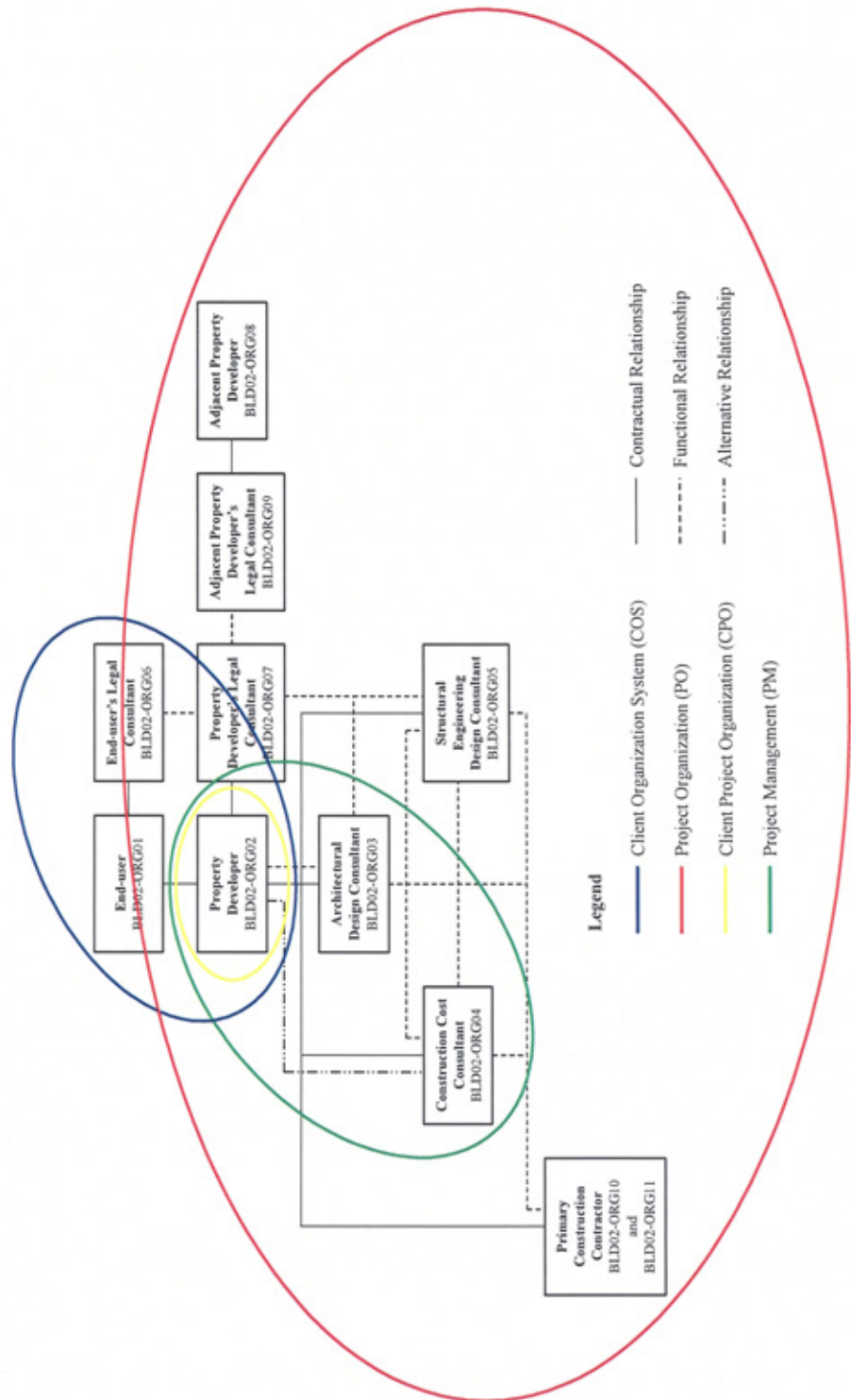


Figure 15.4 Component Organizations during Building Project 2 New-build Construction Sub-process (BLD02-NBCSP)



**Figure 15.5** Component Organizations during Building Project 3 New-build Construction Sub-process (BLD03-NBCSP)

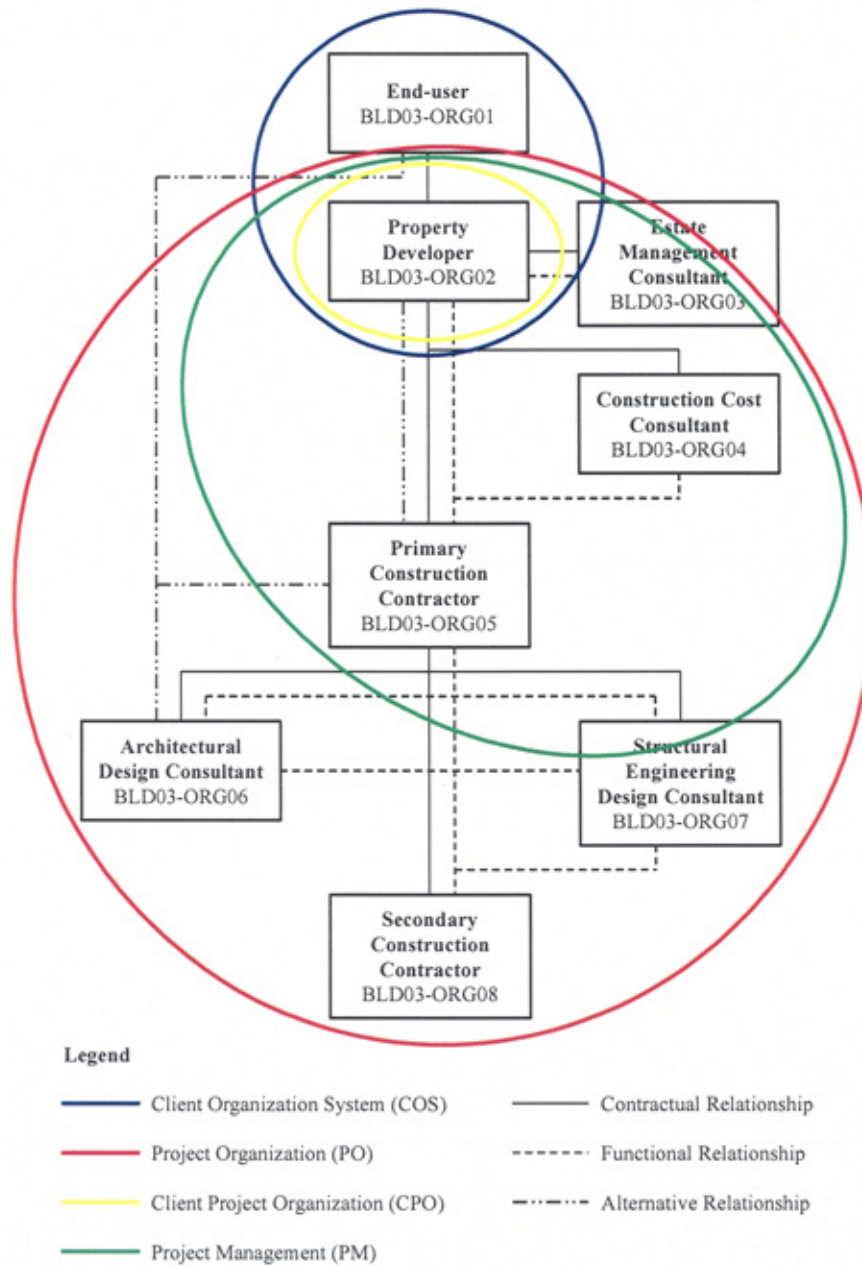


Figure 15.6 Component Organizations during Building Project 4 New-build Construction Sub-process (BLD04-NBCSP)

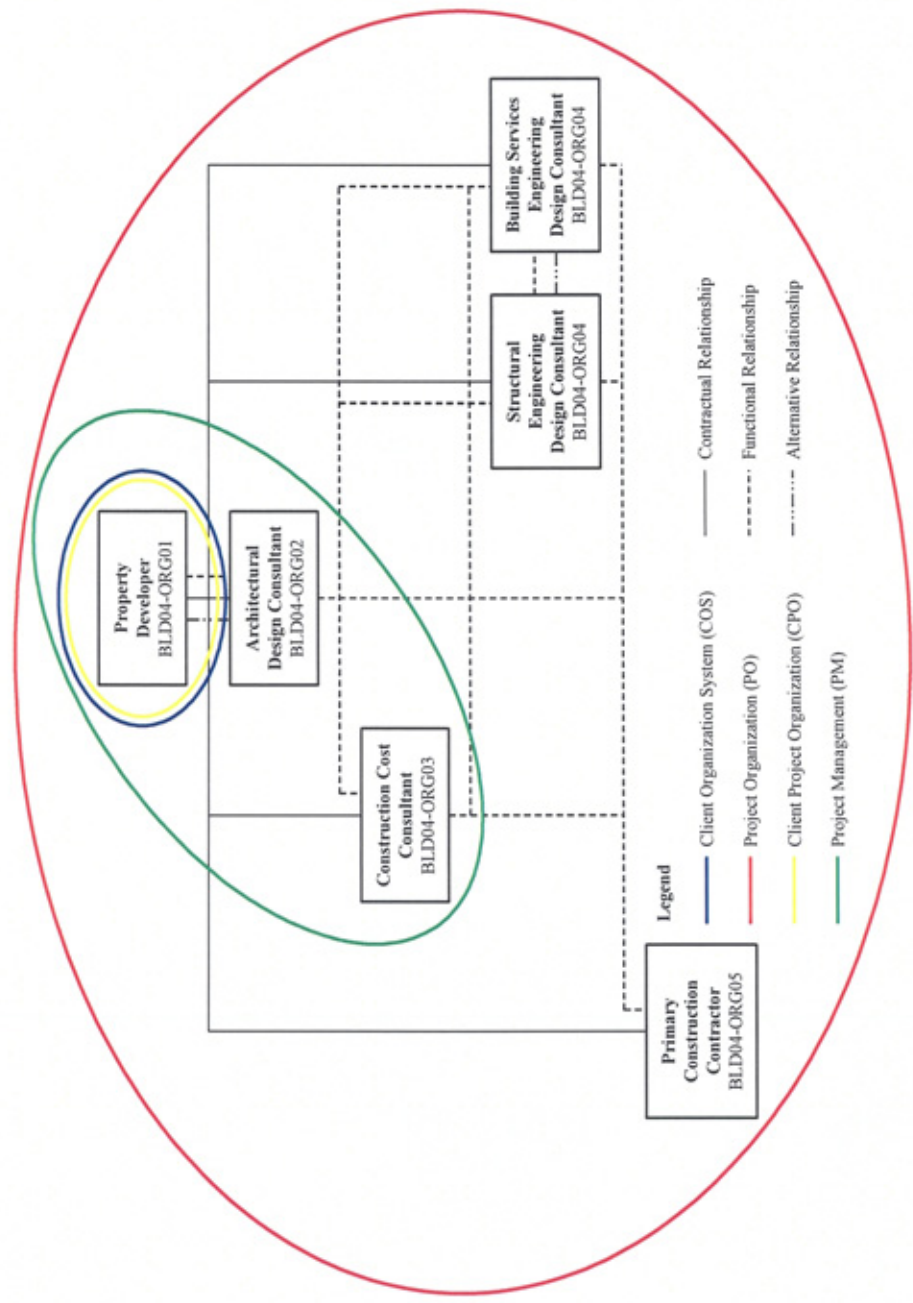
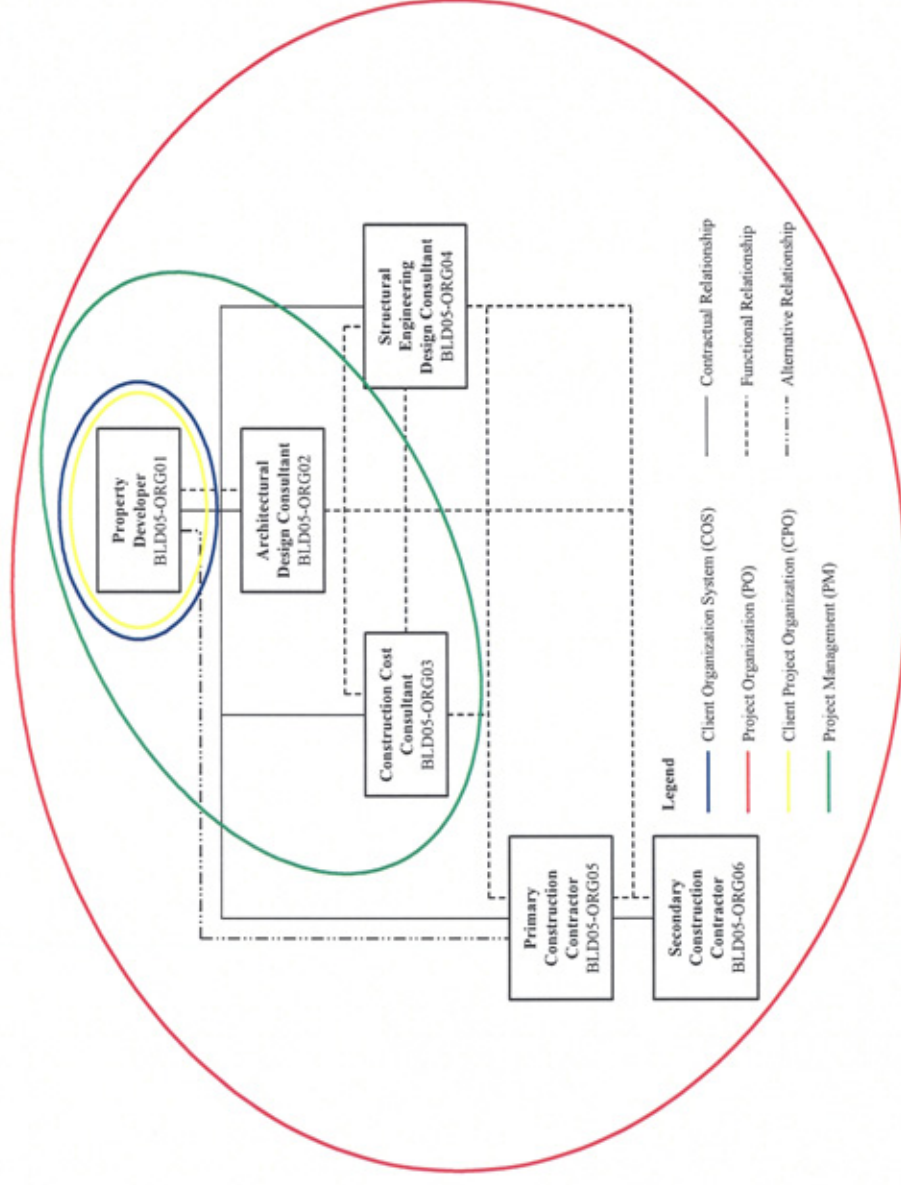
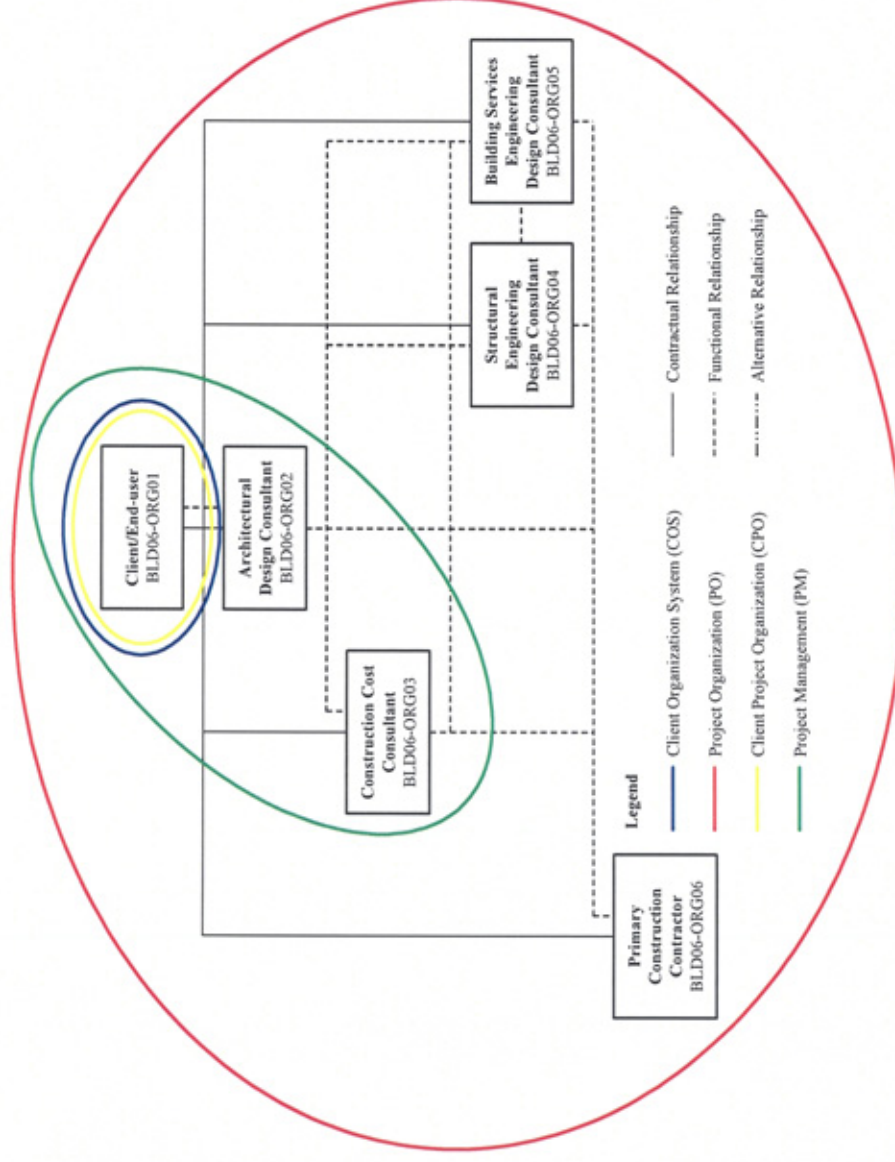




Figure 15.7 Component Organizations during Building Project 5 New-build Construction Sub-process (BLD05-NBCSP)



**Figure 15.8** Component Organizations during Building Project 6 New-build Construction Sub-process (BLD06-NBCSP)



## APPENDIX G: PROFESSIONAL STATUS EVALUATION QUESTIONNAIRE

In this section a blank professional status evaluation questionnaire is illustrated immediately below in Figure 16.1. The respondents taking part in this study were asked to complete the questionnaire towards the end of their semi-structured interview. This enabled the level of their occupational or professional status to be determined in accordance with the procedure outlined in Section 6.3.11 PROFESSIONAL STATUS (F<sub>8</sub>) on page 195.

**Figure 16.1 Professional Status Evaluation Questionnaire**

<p style="text-align: center;"><b>SCHOOL OF THE BUILT ENVIRONMENT</b></p> <p style="text-align: center;">PROFESSIONAL STATUS PROFILE</p>	<p style="text-align: right;">UNIVERSITY of NORTHUMBRIA at NEWCASTLE</p>
--	--

Please go through the questionnaire following the instructions in **BOLD** print.

### Section 1 Personal Details

1 What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	
60 or over	

### Section 2 Education Details

2 Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

### Section 3 Employment Details

3 How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	

4 How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	

5 What is your present job title?

**PLEASE WRITE IN:**

6 How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	

7 What was your job title at the time of the project?

**PLEASE WRITE IN:**

8 What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	

### Section 4 Professional Details

9 Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

## 17 APPENDIX H: EXPLORATORY INTERVIEW PROTOCOL

**Table 17.1 Semi-structured Interview Protocol**

<b>Section 1: Construction Client Details</b>	
1.	Who was the client organization?
2.	What type of organization was the client?
3.	Why did the client decide to commission the building project?
4.	How much previous experience of the building process did the client possess?
5.	How much previous experience of working with the client did your organization possess?
6.	How much previous experience of working with the client did you possess?
7.	How much previous experience of working with the client's representative did you possess?
8.	How did your organization become involved with the client on this building project?
<b>Section 2: Commercial Property Developer Details</b>	
1.	Who was the commercial property developer?
2.	Why did the developer decide to commission the building project?
3.	How much previous experience of the building process did the developer possess?
4.	How much previous experience of working with the developer did your organization possess?
5.	How much previous experience of working with the developer did you possess?
6.	How much previous experience of working with the developer's representative did you possess?
7.	How did your organization become involved with the developer on this building project?
<b>Section 3: Professional Roles and Responsibilities Details</b>	
1.	How would you describe the roles and responsibilities undertaken by your organization during the building project?
2.	How would you describe the roles and responsibilities undertaken by yourself during the building project?
<b>Section 4: Building Project Details</b>	
1.	How would you describe the building project?
2.	What was the location of the building project?
3.	Were there any unusual or unforeseen site difficulties?
4.	What was the original budget for the building project at the briefing stage?
5.	What was the cost estimate of the building project after the scheme design stage?
6.	What was the cost estimate of the building project prior to the tendering stage?
7.	What was the accepted tender estimate?
8.	What was the amount of the final account?
9.	How long did it take to settle the final account?
10.	What date did construction work start on site?
11.	What was the original project duration?



**Section 4: Building Project Details (*Continued*)**

12. What was the actual project duration?
13. Was there any extension of time?
14. Were any liquidated and ascertained damages imposed?

**Section 5: Building Procurement Details**

1. What type of construction contract was used?
2. What tendering procedure was used?
3. What was the network of contractual and non-contractual relationships?

**When the form of contract was JCT 80:**

4. Who was the contract administrator?

**When the architect was the contract administrator:**

5. Did the client/developer or the architect select the professional quantity surveyor?
6. How much previous experience of working with the professional quantity surveyor did the client/developer possess?
7. How much previous experience of working with the professional quantity surveyor did your organization possess?
8. How much previous experience of working with the professional quantity surveyor did you possess?
9. How much previous experience of working with the representative of the professional quantity surveyor did you possess?

**When the architect was not the contract administrator:**

10. Did the client/developer or the architect select the contract administrator?
11. How much previous experience of working with the contract administrator did the client/developer possess?
12. How much previous experience of working with the contract administrator did your organization possess?
13. How much previous experience of working with the contract administrator did you possess?
14. How much previous experience of working with the representative of the contract administrator did you possess?

**When the form of contract was JCT 81:**

15. Did the main contractor work with an independent quantity surveyor to provide design cost information prior to the tender estimate?

**When the main contractor did work with an independent quantity surveyor:**

16. How much previous experience of working with the main contractor's quantity surveyor did your organization possess?
17. How much previous experience of working with the main contractor's quantity surveyor did you possess?
18. How much previous experience of working with the representative of the main contractor's quantity surveyor did you possess?

### Section 6: Secondary Contractor and Supplier Details

1. To what extent were any subcontractors or suppliers responsible for the provision of a project-specific design element?
2. How much previous experience of working with the subcontractors or suppliers did the client/developer possess?
3. How much previous experience of working with the subcontractors or suppliers did the main contractor possess?
4. How much previous experience of working with the subcontractors or suppliers did your organization possess?
5. How much previous experience of working with the subcontractors or suppliers did you possess?
6. How much previous experience of working with the representatives of the subcontractors or suppliers did you possess?

### Section 7: Design Team Details

1. What types of organizations formed the design team?
- When the form of contract was JCT 80:**
2. Did the client/developer specify any of the design team members?
  3. How much previous experience of working with the individual design team members did the client/developer possess?
  4. How much previous experience of working with the individual design team members did your organization possess?
  5. How much previous experience of working with the individual design team members did you possess?
  6. How much previous experience of working with the representatives of the individual design team members did you possess?
- When the form of contract was JCT 81:**
7. How much previous experience of working with the individual design team members did the client/developer possess?
  8. How much previous experience of working with the individual design team members did the main contractor possess?
  9. How much previous experience of working with the individual design team members did your organization possess?
  10. How much previous experience of working with the individual design team members did you possess?
  11. How much previous experience of working with the representatives of the individual design team members did you possess?

### Section 8: Primary Contractor Details

**When the form of contract was JCT 80:**

1. How much previous experience of working with the main contractor did the client/developer possess?
2. How much previous experience of working with the main contractor did your organization possess?
3. How much previous experience of working with the main contractor did you possess?
4. How much previous experience of working with the representative of the main contractor did you possess?

### Section 8: Primary Contractor Details (Continued)

**When the form of contract was JCT 81:**

1. To what extent did the main contractor influence the building design?
2. How much previous experience of working with the main contractor did the client/developer possess?
3. How much previous experience of working with the main contractor did your organization possess?
4. How much previous experience of working with the main contractor did you possess?
5. How much previous experience of working with the representative of the main contractor did you possess?

### Section 9: Reputation Details

**Using *Scale A*, how would you rank the reputation of each of the following organizations:**

1. The client?
2. The developer?
3. The contract administrator?
4. The individual members of the design team?
5. The main contractor's/professional quantity surveyor?
6. The main contractor?
7. The subcontractors and/or suppliers?

### Section 10: Interdependence Details

**Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations:**

1. The client?
2. The developer?
3. The contract administrator?
4. The individual members of the design team?
5. The main contractor's/professional quantity surveyor?
6. The main contractor?
7. The subcontractors and/or suppliers?

### Section 11: Structural Conflict Details

**Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations:**

1. The client?
2. The developer?
3. The contract administrator?
4. The individual members of the design team?
5. The main contractor's/professional quantity surveyor?
6. The main contractor?
7. The subcontractors and/or suppliers?

**Section 12: Operating Conflict Details**

Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations:

1. The client?
2. The developer?
3. The contract administrator?
4. The individual members of the design team?
5. The main contractor's/professional quantity surveyor?
6. The main contractor?
7. The subcontractors and/or suppliers?

**Section 13: Professional Services and Output Sectors Details**

1. What professional services did your organization provide during the project?
2. What is the full range of professional services that your organization could provide to a client?
3. What is the full range of industrial sectors to which your organization could provide a professional service to a client?
4. How many years has your organization been established?
5. Does your organization produce any company literature/corporate brochures?

**Table 18.1    Dataset of Inter-organizational Conflict Factors and Measured Variables**

[illegible]

## APPENDIX J: PROFESSIONAL STATUS EVALUATION QUESTIONNAIRE SAMPLE


**Figure 19.1 Professional Status Evaluation Questionnaire for BLD01-ORG03-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**

**PROFESSIONAL STATUS PROFILE**

**Boundary Role Representative Code: BLD01-ORG03-REP01**

UNIVERSITY of  
NORTHUMBRIA  
at NEWCASTLE



Please go through the questionnaire following the instructions in **BOLD** print.

### Section 1 Personal Details

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	<input type="checkbox"/>
21 - 24	<input type="checkbox"/>
25 - 29	<input type="checkbox"/>
30 - 34	<input checked="" type="checkbox"/>
35 - 39	<input type="checkbox"/>
40 - 49	<input type="checkbox"/>
50 - 59	<input type="checkbox"/>
60 or over	<input type="checkbox"/>

### Section 2 Education Details

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	<input checked="" type="checkbox"/>
Scottish/Irish Higher	<input type="checkbox"/>
BTEC/SCOTVEC ONC	<input type="checkbox"/>
BTEC/SCOTVEC OND	<input type="checkbox"/>
BTEC/SCOTVEC HNC	<input type="checkbox"/>
BTEC/SCOTVEC HND	<input checked="" type="checkbox"/>
Degree	<input type="checkbox"/>
Post-graduate Degree/Diploma	<input type="checkbox"/>
Other (please specify below)	<input type="checkbox"/>

**PLEASE WRITE IN:**

### Section 3 Employment Details

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	<input type="checkbox"/>
1 - 2 years	<input type="checkbox"/>
2 - 5 years	<input type="checkbox"/>
5 - 10 years	<input type="checkbox"/>
More than 10 years	<input checked="" type="checkbox"/>

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	<input type="checkbox"/>
1 - 2 years	<input type="checkbox"/>
2 - 5 years	<input type="checkbox"/>
5 - 10 years	<input checked="" type="checkbox"/>
More than 10 years	<input type="checkbox"/>

**5** What is your present job title?

**PLEASE WRITE IN:**

PROJECT LEADER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	<input type="checkbox"/>
1 - 2 years	<input type="checkbox"/>
2 - 5 years	<input checked="" type="checkbox"/>
5 - 10 years	<input type="checkbox"/>
More than 10 years	<input type="checkbox"/>

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

PROJECT LEADER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	<input type="checkbox"/>
£10,000 - £14,999	<input type="checkbox"/>
£15,000 - £19,999	<input checked="" type="checkbox"/>
£20,000 - £24,999	<input type="checkbox"/>
£25,000 - £29,999	<input type="checkbox"/>
£30,000 or more	<input type="checkbox"/>

### Section 4 Professional Details

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	<input checked="" type="checkbox"/>
RIBA	<input type="checkbox"/>
RICS	<input type="checkbox"/>
CIOB	<input type="checkbox"/>
CIBSE	<input type="checkbox"/>
ICE	<input type="checkbox"/>
IStructE	<input type="checkbox"/>
BIAT	<input type="checkbox"/>
ARCUK	<input type="checkbox"/>
APM	<input type="checkbox"/>
Other (please specify below)	<input type="checkbox"/>

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.2 Professional Status Evaluation Questionnaire for BLD01-ORG04-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD01-ORG04-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

1 What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

**Section 2 Education Details**

2 Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	X
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

RICS QUALIFICATION

**Section 3 Employment Details**

3 How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

4 How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

5 What is your present job title?

**PLEASE WRITE IN:**

SELF-EMPLOYED SOLE-PRACTITIONER  
 SENIOR PARTNER

6 How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

7 What was your job title at the time of the project?

**PLEASE WRITE IN:**

AS ABOVE

8 What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

**Section 4 Professional Details**

9 Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	X
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

FELLOW OF RICS

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.3 Professional Status Evaluation Questionnaire for BLD01-ORG05-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**

**PROFESSIONAL STATUS PROFILE**

**Boundary Role Representative Code: BLD01-ORG05-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

---

### Section 1 Personal Details

1 What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

---

### Section 2 Education Details

2 Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

---

### Section 3 Employment Details

3 How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

4 How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

5 What is your present job title?

**PLEASE WRITE IN:**

PARTNER - STRUCTURAL ENGINEERING

6 How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

7 What was your job title at the time of the project?

**PLEASE WRITE IN:**

AS ABOVE

8 What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

---

### Section 4 Professional Details

9 Please indicate all professional bodies or institutions to which you are affiliated?


**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	
IStructE	X
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

FELLOW OF ISTRUCTE

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**





**Figure 19.4 Professional Status Evaluation Questionnaire for BLD02-ORG03-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD02-ORG03-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	X
35 - 39	
40 - 49	
50 - 59	
60 or over	

**Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	X
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

**Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**5** What is your present job title?

**PLEASE WRITE IN:**

PROJECT LEADER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

PROJECT LEADER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	X
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	

**Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	X
RIBA	
RICS	
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.5 Professional Status Evaluation Questionnaire for BLD02-ORG04-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Respondent Code: BLD02-ORG04-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	X
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

RICS QUALIFICATION

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

**5** What is your present job title?

**PLEASE WRITE IN:**

SELF-EMPLOYED SOLE-PRACTITIONER  
 SENIOR PARTNER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

AS ABOVE

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	X
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

FELLOW OF RICS

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.6 Professional Status Evaluation Questionnaire for BLD02-ORG05-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD02-ORG05-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

1 What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

**Section 2 Education Details**

2 Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

**Section 3 Employment Details**

3 How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

4 How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

5 What is your present job title?

**PLEASE WRITE IN:**

PARTNER - STRUCTURAL ENGINEERING

6 How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

7 What was your job title at the time of the project?

**PLEASE WRITE IN:**

AS ABOVE

8 What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

**Section 4 Professional Details**

9 Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	
IStructE	X
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

FELLOW OF ISTRUCTE

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.7 Professional Status Evaluation Questionnaire for BLD03-ORG05-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD03-ORG05-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

**Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	X

**PLEASE WRITE IN:**

ARICS

**Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**5** What is your present job title?

**PLEASE WRITE IN:**

COMMERCIAL MANAGER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

COMMERCIAL MANAGER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

**Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	X
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**


**Figure 19.8 Professional Status Evaluation Questionnaire for BLD03-ORG06-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**

**PROFESSIONAL STATUS PROFILE**

**Boundary Role Representative Code: BLD03-ORG06-REP01**

UNIVERSITY of  
NORTHUMBRIA  
at NEWCASTLE



Please go through the questionnaire following the instructions in **BOLD** print.

### Section 1 Personal Details

1 What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	<input type="checkbox"/>
21 - 24	<input type="checkbox"/>
25 - 29	<input type="checkbox"/>
30 - 34	<input type="checkbox"/>
35 - 39	<input type="checkbox"/>
40 - 49	<input checked="" type="checkbox"/>
50 - 59	<input type="checkbox"/>
60 or over	<input type="checkbox"/>

### Section 2 Education Details

2 Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	<input type="checkbox"/>
Scottish/Irish Higher	<input checked="" type="checkbox"/>
BTEC/SCOTVEC ONC	<input type="checkbox"/>
BTEC/SCOTVEC OND	<input type="checkbox"/>
BTEC/SCOTVEC HNC	<input checked="" type="checkbox"/>
BTEC/SCOTVEC HND	<input type="checkbox"/>
Degree	<input type="checkbox"/>
Post-graduate Degree/Diploma	<input type="checkbox"/>
Other (please specify below)	<input type="checkbox"/>

**PLEASE WRITE IN:**

### Section 3 Employment Details

3 How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	<input type="checkbox"/>
1 - 2 years	<input type="checkbox"/>
2 - 5 years	<input type="checkbox"/>
5 - 10 years	<input type="checkbox"/>
More than 10 years	<input checked="" type="checkbox"/>

4 How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	<input type="checkbox"/>
1 - 2 years	<input type="checkbox"/>
2 - 5 years	<input checked="" type="checkbox"/>
5 - 10 years	<input type="checkbox"/>
More than 10 years	<input type="checkbox"/>

5 What is your present job title?

**PLEASE WRITE IN:**

PROJECT LEADER

6 How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	<input type="checkbox"/>
1 - 2 years	<input type="checkbox"/>
2 - 5 years	<input type="checkbox"/>
5 - 10 years	<input checked="" type="checkbox"/>
More than 10 years	<input type="checkbox"/>

7 What was your job title at the time of the project?

**PLEASE WRITE IN:**

PROJECT LEADER

8 What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	<input type="checkbox"/>
£10,000 - £14,999	<input type="checkbox"/>
£15,000 - £19,999	<input type="checkbox"/>
£20,000 - £24,999	<input checked="" type="checkbox"/>
£25,000 - £29,999	<input type="checkbox"/>
£30,000 or more	<input type="checkbox"/>

### Section 4 Professional Details

9 Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	<input type="checkbox"/>
RIBA	<input type="checkbox"/>
RICS	<input type="checkbox"/>
CIOB	<input type="checkbox"/>
CIBSE	<input type="checkbox"/>
ICE	<input type="checkbox"/>
IStructE	<input type="checkbox"/>
BIAT	<input checked="" type="checkbox"/>
ARCUK	<input type="checkbox"/>
APM	<input type="checkbox"/>
Other (please specify below)	<input type="checkbox"/>

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.9 Professional Status Evaluation Questionnaire for BLD03-ORG07-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD03-ORG07-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

**Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	X
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

C.ENG, FStructE

**Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

OFFICE MANAGER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

AS ABOVE

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

**Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	
IStructE	X
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.10 Professional Status Evaluation Questionnaire for BLD04-ORG02-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD04-ORG02-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	X
Other (please specify below)	

**PLEASE WRITE IN:**

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

DIRECTOR/ARCHITECT

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

DIRECTOR/ARCHITECT

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	X
RICS	
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.11 Professional Status Evaluation Questionnaire for BLD04-ORG03-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD04-ORG03-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### Section 1 Personal Details

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

### Section 2 Education Details

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

EXTERNAL EXAMINATIONS OF THE ROYAL INSTITUTION OF CHARTERED SURVEYORS

### Section 3 Employment Details

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**5** What is your present job title?

**PLEASE WRITE IN:**

PARTNER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

PARTNER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

### Section 4 Professional Details

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	X
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

FELLOW OF RICS

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**



**Figure 19.12 Professional Status Evaluation Questionnaire for BLD04-ORG04-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD04-ORG04-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

**Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	X
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

**Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

REGIONAL ASSOCIATE

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

REGIONAL ASSOCIATE

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

**Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	X
IStructE	X
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.13 Professional Status Evaluation Questionnaire for BLD04-ORG04-REP02**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**

UNIVERSITY of  
 NORTHUMBRIA  
 at NEWCASTLE



**Boundary Role Representative Code: BLD04-ORG04-REP02**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	
60 or over	X

**Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	X

**PLEASE WRITE IN:**

DIPLOMA IN HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION AT NATIONAL COLLEGE, LONDON.

**Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**5** What is your present job title?

**PLEASE WRITE IN:**

REGIONAL ASSOCIATE: BUILDING SERVICES

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

AS ABOVE

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

**Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	X
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
 COMPLETING THIS QUESTIONNAIRE**

**Figure 19.14 Professional Status Evaluation Questionnaire for BLD04-ORG05-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD04-ORG05-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

**Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

**Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

**Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

CONTRACTS MANAGER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

CONTRACTS MANAGER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

**Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	X
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.15 Professional Status Evaluation Questionnaire for BLD05-ORG02-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD05-ORG02-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

1 What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	X
35 - 39	
40 - 49	
50 - 59	
60 or over	

### **Section 2 Education Details**

2 Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	X
Other (please specify below)	

**PLEASE WRITE IN:**

### **Section 3 Employment Details**

3 How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

4 How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

5 What is your present job title?

**PLEASE WRITE IN:**

ARCHITECT

6 How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

7 What was your job title at the time of the project?

**PLEASE WRITE IN:**

PROJECT ARCHITECT

8 What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	X
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	

### **Section 4 Professional Details**

9 Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	X
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.16 Professional Status Evaluation Questionnaire for BLD05-ORG03-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD05-ORG03-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	X
40 - 49	
50 - 59	
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	X
Other (please specify below)	X

**PLEASE WRITE IN:**

FELLOW OF ROYAL INSTITUTION OF CHARTERED SURVEYORS

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

ASSOCIATE

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

ASSOCIATE

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	X
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	X
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.17 Professional Status Evaluation Questionnaire for BLD05-ORG04-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD05-ORG04-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	X
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

C.ENG, MICE

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

SENIOR ENGINEER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

SENIOR ENGINEER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	X
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.18 Professional Status Evaluation Questionnaire for BLD05-ORG05-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD05-ORG05-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	X
40 - 49	
50 - 59	
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	X

**PLEASE WRITE IN:**

RICS PROFESSIONAL EXAMS, C DIP AF (ACCA)

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**5** What is your present job title?

**PLEASE WRITE IN:**

REGIONAL DIRECTOR

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	X
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

GENERAL MANAGER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	X
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.19 Professional Status Evaluation Questionnaire for BLD06-ORG02-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD06-ORG02-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	X
Other (please specify below)	

**PLEASE WRITE IN:**

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

DIRECTOR/ARCHITECT

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

DIRECTOR/ARCHITECT

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	X
RICS	
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**



**Figure 19.20 Professional Status Evaluation Questionnaire for BLD06-ORG03-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD06-ORG03-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### Section 1 Personal Details

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

### Section 2 Education Details

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	
Post-graduate Degree/Diploma	X
Other (please specify below)	

**PLEASE WRITE IN:**

### Section 3 Employment Details

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

PARTNER - QUANTITY SURVEYOR

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

PARTNER - QUANTITY SURVEYOR

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

### Section 4 Professional Details

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	X
CIOB	
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	X
Other (please specify below)	

**PLEASE WRITE IN:**

FELLOW OF RICS

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.21 Professional Status Evaluation Questionnaire for BLD06-ORG04-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD06-ORG04-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### Section 1 Personal Details

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	
50 - 59	X
60 or over	

### Section 2 Education Details

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	X
Other (please specify below)	

**PLEASE WRITE IN:**

### Section 3 Employment Details

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

TECHNICAL DIRECTOR

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	X
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

TECHNICAL DIRECTOR

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

### Section 4 Professional Details

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	
ICE	X
IStructE	X
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.22 Professional Status Evaluation Questionnaire for BLD06-ORG05-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD06-ORG05-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	X
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	
Degree	X
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

PARTNER - BUILDING SERVICES ENGINEER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

PARTNER - BUILDING SERVICES ENGINEER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	X
£30,000 or more	

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	
CIBSE	X
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

FEANI

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

**Figure 19.23 Professional Status Evaluation Questionnaire for BLD06-ORG06-REP01**

**SCHOOL OF THE BUILT ENVIRONMENT**  
**PROFESSIONAL STATUS PROFILE**



**Boundary Role Representative Code: BLD06-ORG06-REP01**

Please go through the questionnaire following the instructions in **BOLD** print.

### **Section 1 Personal Details**

**1** What is your age *next* birthday?

**PLEASE TICK ONE BOX ONLY:**

Under 21	
21 - 24	
25 - 29	
30 - 34	
35 - 39	
40 - 49	X
50 - 59	
60 or over	

### **Section 2 Education Details**

**2** Please indicate all qualifications gained after the age of 16.

**PLEASE TICK ALL THAT APPLY:**

GCE A Level	X
Scottish/Irish Higher	
BTEC/SCOTVEC ONC	
BTEC/SCOTVEC OND	
BTEC/SCOTVEC HNC	
BTEC/SCOTVEC HND	X
Degree	
Post-graduate Degree/Diploma	
Other (please specify below)	

**PLEASE WRITE IN:**

CIOB PARTS 2 & 3 EXAMINATIONS

### **Section 3 Employment Details**

**3** How many years have you worked in the Construction Industry?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**4** How many years have you worked for your present employer?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	
5 - 10 years	
More than 10 years	X

**5** What is your present job title?

**PLEASE WRITE IN:**

REGIONAL MANAGER

**6** How many years have you worked in this position?

**PLEASE TICK ONE BOX ONLY:**

Less than 1 year	
1 - 2 years	
2 - 5 years	X
5 - 10 years	
More than 10 years	

**7** What was your job title at the time of the project?

**PLEASE WRITE IN:**

REGIONAL MANAGER

**8** What was your *gross* salary for the past 12 months?

**PLEASE TICK ONE BOX ONLY:**

Less than £10,000	
£10,000 - £14,999	
£15,000 - £19,999	
£20,000 - £24,999	
£25,000 - £29,999	
£30,000 or more	X

### **Section 4 Professional Details**

**9** Please indicate all professional bodies or institutions to which you are affiliated?

**PLEASE TICK ALL THAT APPLY:**

None	
RIBA	
RICS	
CIOB	X
CIBSE	
ICE	
IStructE	
BIAT	
ARCUK	
APM	
Other (please specify below)	

**PLEASE WRITE IN:**

MEMBER OF CIOB

**THANK YOU VERY MUCH FOR  
COMPLETING THIS QUESTIONNAIRE**

## 20 APPENDIX K: BUILDING PROJECT 1 (BLD01) INTERVIEW TRANSCRIPTS

### 20.1 INTERVIEW TRANSCRIPT BLD01-TRAN01

Organization Role: Architectural Design Consultant

Organization Code: BLD01-ORG03

Respondent Role: Boundary Representative for BLD01-ORG03

Respondent Code: BLD01-ORG03-REP01

Interviewer Code: BLD01-ORG03-INT01

BLD01-ORG03-REP01: I will make some notes so that you can understand what I am talking about. Basically, it is difficult to describe but once the negotiations had been concluded with BLD01-ORG06 – who were ultimately going to be the design and build contractor [primary construction contractor] – they got straight onto the site as there was grouting to be done on the site and there was demolition work to be done on the site. We were novated just prior to that starting, which allowed us to do the working drawings. So the next stage was from working drawings through to the actual construction process.

BLD01-ORG03-INT01: This is a very interesting series of inter-organizational relationships, which is very interesting from the point-of-view of this research project.

BLD01-ORG03-REP01: Here we have a typical design and build hierarchy. I'll just put the names in now so that you will have an idea as to who the players were. That's BLD01-ORG06, in case you can't read that [pointing to the inter-organizational relationships diagram for the new-build construction sub-process [see Figure 14.2 on page 319]. You'll be very familiar with this. So we're effectively on the same starting position as BLD01-ORG05 with the builder [BLD01-ORG06]. The quantity surveyor [BLD01-ORG04]? Well, they became almost a project manager, yeah? He [BLD01-ORG04-REP01] takes on a different authority altogether.

BLD01-ORG03-INT01: So it was the same construction cost consultant [BLD01-ORG04] that you worked with during the new-build design sub-process?

BLD01-ORG03-REP01: That's right. He [BLD01-ORG04-REP01] had links with the developer [BLD01-ORG02]. And once novated, he was the direct project manager, if you like, for BLD01-ORG02.

BLD01-ORG03-INT01: So the construction cost consultant [BLD01-ORG04] acted as an employer's representative, project managing the building project?

BLD01-ORG03-REP01: That's right. This perhaps indicates where you do tend to get some conflict beginning to develop, you see. Even in a design and build contract.

BLD01-ORG03-INT01: I was unsure as to the construction cost consultant's [BLD01-ORG04] inter-organizational relationships during this design and build building project [BLD01].

BLD01-ORG03-REP01: Basically, the quantity surveyor [construction cost consultant] does tend to take on a more project management-type role. This is because he's holding the purse strings, which is basically all the developer [commercial property developer] is interested in. But he is also the guy paying the builder [primary construction contractor]. So they develop a much closer liaison. You tend to find that whilst not being instructed through the quantity surveyor [construction cost consultant], a lot of the instructions which are ideas or suggestions – which come from the contractor [primary construction contractor] as to help you economize things – are developed through the quantity surveyor [construction cost consultant], as he has to satisfy the developer [commercial property developer].

BLD01-ORG03-INT01: That is very interesting. You mentioned there was a supplementary contract, separate to the new-build contract, for the fit-out? You must have been very busy during the building project?

BLD01-ORG03-REP01: Yes, very busy. We have got our end-user, BLD01-ORG01, and we are the lead consultant. There was a very limited involvement for the structural engineers [BLD01-ORG05], but they were there just to provide any advice if there was any problems. There was also an in-house building services engineer [BLD01-ORG07].

BLD01-ORG03-INT01: I understand.

BLD01-ORG03-REP01: Now then, the problem here is that both of these [pointing to the building services engineering design consultant and the construction cost consultant on the inter-organizational

relationships diagram for the fit-out design sub-process (see Figure 14.3 on page 320)] where in-house to BLD01-ORG01. So, although we were the lead consultant, we really had very little influence over these people. They'd done it all before. Nevertheless, we were still employed to co-ordinate between all of these people. So we did form the lead consultant. The developer [commercial property developer] at this point is basically the end-user [BLD01-ORG01].

BLD01-ORG03-INT01: That must have been difficult for you as the representative for the lead consultant having to think about the nature of the organizations that you were working with and the different types of inter-organizational relationships you were involved with?

BLD01-ORG03-REP01: You've hit the nail on the head, yes. To split the information so that it is clearly defined – during the new-build contract – whilst working for two different people, whose interests at the end of the day are in conflict, is very difficult. I mean BLD01-ORG01 would want the best they possibly can out of the developer [BLD02-ORG02], for as little money as possible, and the developer [BLD01-ORG02] wants to make as much money as he possibly can – within certain constraints, obviously. But you can imagine the difficulty you have due to confidentiality. I mean BLD01-ORG01 had to know nothing about what was in the new-build bill, and they were actually procuring the building for a certain amount of money – a certain contract sum – which would be in excess of the actual tender sum that the contractor [BLD01-ORG06] put in. They were never to know that. I mean, there were actual clauses of confidentiality written in the new-build contract so that BLD01-ORG01 never knew actually what the building cost. They only knew what the developer [BLD01-ORG02] had charged, and that breeds its own sort of conflict, you know. I am not saying that it is vicious. It is just that you have to be very careful as to what you say and to whom you say it.

BLD01-ORG03-INT01: That is a very interesting scenario.

BLD01-ORG03-REP01: Wait 'til we get to BLD02. That's even more complicated. This one is easy.

BLD01-ORG03-INT01: Do you feel happy for me to start the interview?

BLD01-ORG03-REP01: Oh, yes. Obviously, there are bits of links that went on in-between the diagrams but that is the very basis of it. I have made a note of the in-house on that diagram

[pointing to the inter-organizational relationships diagram for the fit-out design sub-process (see Figure 14.3 on page 320)].

BLD01-ORG03-INT01: Why did the end-user [BLD01-ORG01] decided to purchase the completed building project from the commercial property developer [BLD01-ORG02]?

BLD01-ORG03-REP01: They had an existing property in \*\*\*\*\* that was in an extremely dilapidated state. It was too small for the amount of trade they could offer to the town and the range of products and such like they could actually get within the space they had was insufficient. So the ideal solution was to purchase this site, which was merely yards away from the existing property – probably about 150 yards – and develop a brand new store, which is trading very well. So it has proved to be worth it.

BLD01-ORG03-INT01: How much previous experience of the building process did the end-user [BLD01-ORG01] possess?

BLD01-ORG03-REP01: Well, as in the majority of large retail organizations, they have a building development section, and as a consequence, they're very well clued-up on what the process is all about. You can see from the fact that on the fit-out diagram [inter-organizational relationships diagram for the fit-out design sub-process (see Figure 14.3 on page 320)], there is an in-house quantity surveyor [BLD01-ORG07] and an in-house building services engineer [BLD01-ORG07]. Does that answer your question? The guy who we were dealing with was, in fact, the building project manager for BLD01-ORG01.

BLD01-ORG03-INT01: Did you find it difficult working with an end-user [BLD01-ORG01] who had previous experience of the construction process and who may have had his or her own set procedures?

BLD01-ORG03-REP01: No, I found it extremely useful.

BLD01-ORG03-INT01: How much experience of working with the end-user [BLD01-ORG01] did your organization possess?

BLD01-ORG03-REP01: Well, we used to work with the north-eastern division of BLD01-ORG01 sometime ago, and that just fizzled out. I don't know the exact circumstances behind the fizzling out. This was the first time that we had worked for BLD01-ORG01 again for, I think, about 4 or 5 years. But it was the \*\*\*\*\* division, and the two basically do not



talk to each other. It was actually through the developer [BLD01-ORG02] that we were led to BLD01-ORG01

BLD01-ORG03-INT01: How much previous experience of working with the commercial property developer [BLD01-ORG02] did your organization possess?

BLD01-ORG03-REP01: We had worked with one of the members of BLD01-ORG02. BLD01-ORG02 was set up specifically to develop two sites. In other words, the parties involved weren't necessarily an organization previously. They were various people who were involved in development and they banded together to form this company. And in actual fact, it does not exist anymore. The players are still there, but the company exists only on paper. Their relationship is now over.

BLD01-ORG03-INT01: How much previous experience of working with the individual parties who formed the commercial property developer [BLD01-ORG02] did your organization possess?

BLD01-ORG03-REP01: Yes, we had worked with about two of them before.

BLD01-ORG03-INT01: How many individual parties were there within the commercial property developer [BLD01-ORG02]?

BLD01-ORG03-REP01: Three.

BLD01-ORG03-INT01: How much experience of working with the commercial property developer [BLD01-ORG02] did you possess?

BLD01-ORG03-REP01: None. Neither BLD01-ORG02 nor the separate parties that formed BLD01-ORG02. Similarly, I had not worked with BLD01-ORG01 before. Retail clients, yes, but not BLD01-ORG01.

BLD01-ORG03-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD01-ORG03-REP01: Well, it was, if you take the project in its entirety, yeah – as a global entity – then it was the full RIBA Plan of Works Schedule. We took it from inception to completion, and we explored every duty within the RIBA Plan of Works. Obviously, from the inter-organizational relationships diagrams that I drew before, you can see that it's pretty fragmented. It's not the normal procurement. It's different at each stage, or different within each piece of contractual segment that we ended up with.

BLD01-ORG03-INT01: Bearing in mind the four different sub-processes of the building project, to what extent did you experience difficulties in differentiating your professional roles?

BLD01-ORG03-REP01: Yes, I did in certain instances. The problem was that we were not commissioned to do inspections for the new-build works. That was the project manager's [BLD01-ORG04-REP01] duty. It was up to him to inspect that. Now, it's pretty damn impossible to keep your eyes closed as to what is going on with the builder [primary construction contractor], when you're also commissioned to do inspections on a fit-out, you know. It's difficult to know how much to comment on. How much to write to the builder [primary construction contractor] about that you're not satisfied with, when you are working for two separate clients, effectively, and you're not commissioned to do inspection for one client, but you are for the other – but only on specifics. Do you get that? It is difficult to explain. So that is why the conflict develops.

BLD01-ORG03-INT01: Were you able to overcome this difficulty?

BLD01-ORG03-REP01: Well, if I saw something which I felt was my duty of care needed me to point out, then I acted upon it and satisfied myself that it was rectified accordingly. However, the instances where it was actually necessary were few and far between. I was merely pointing things out to the builder [primary construction contractor], which I was working for on a kind of one-to-one basis: "Having made sure he'd done this, I was just looking at that, and I wondered if he had absolutely no problems with it?" That is the way I worked around it. If there had been anything which was necessary to put into writing, then I would have used my duty of care as an excuse, if you like, to write about. Fortunately, the job went reasonably smoothly.

BLD01-ORG03-INT01: What was the location of the building project?

BLD01-ORG03-REP01: It's located in medium-sized town in \*\*\*\*\*. It's right next to a river, in fact, and the site used to be an old ambulance depot.

BLD01-ORG03-INT01: Were there any unusual or unforeseen site difficulties?

BLD01-ORG03-REP01: Yes, there was. We had an inclination that there were some archaeological antiquities, or whatever, on the site and underground. The extent of these was not determined. Unfortunately, when the contractor [BLD01-ORG06] dug the first foundation trench, or when he started to strip-off the site, he hit these things, and as a consequence the

contract start date was delayed about 6 to 8 weeks and cost the developer [BLD01-ORG02] some £30,000.

BLD01-ORG03-INT01: Did this affect the relationship between your organization and the commercial property developer [BLD01-ORG02]? Did the commercial property developer [BLD01-ORG02] require any design/quality cost savings as a consequence?

BLD01-ORG03-REP01: No, not really. I think we had advised adequately that there was this possibility. Needless to say, the developer's [BLD01-ORG02] . . . he's losing out to the tune of £30,000, and he's looking for somebody to hold responsible for. And we haven't been sued.

BLD01-ORG03-INT01: What was the commercial property developer's [BLD01-ORG02] original budget for the building project at the briefing stage?

BLD01-ORG03-REP01: £550,000, I think.

BLD01-ORG03-INT01: What was the cost estimate of the building project after the scheme design stage?

BLD01-ORG03-REP01: No, the cost estimate had not changed. That was kind of a set figure, which was negotiated with what would ultimately be the design and build contractor [BLD01-ORG06]. So tenders, as such, were not actually sort. They went with a figure to the builder [BLD01-ORG06] and asked: "Can you do this project for this much?" And he said: "Yes."

BLD01-ORG03-INT01: What was the amount of the final account?

BLD01-ORG03-REP01: I am not privy to that on the new-build contract. Do you want me to talk separately about the fit-out contract?

BLD01-ORG03-INT01: Yes, if you would like to?

BLD01-ORG03-REP01: Well, the pre-tender estimate for the fit-out, which was a traditionally procured contract . . . it was with the same contractor [primary construction contractor], at the end of the day. But it did, in fact, go out to tender. In other words, it could have been run as two separate contracts altogether, with a new-build finish date and a fit-out start date. In other words, the developer [commercial property developer] hands-over the new-build work. But it didn't actually work that way, because, in fact, the lowest tenderer was the same contractor [primary construction contractor] who was building the new-build. Obviously his site set-up and mobilization costs do not exist, which

made him more competitive. Now, that was something like £750,000, and the tender figure came in at about £723,000, I think?

BLD01-ORG03-INT01: Do you know what the final account was for the fit-out contract?

BLD01-ORG03-REP01: No, but I could find out?

BLD01-ORG03-INT01: What tendering procedure was used?

BLD01-ORG03-REP01: Well, we explained that the new-build side of things, which was: "Can you do it for this much?" It was a selective tendering process for the fit-out.

BLD01-ORG03-INT01: How long did it take to settle the final account?

BLD01-ORG03-REP01: The final accounts for the fit-out contract and the new-build contract are still not, are you ready for this, are still not sorted out. It's likely to take an awful long time to sort out. This is because right at the end of the project the contractor [BLD01-ORG06] went into liquidation. And so we are now actually working through the receivership process. We did employ another contractor [primary construction contractor] to sort out the snagging list and the defects at the end of the 12 months. But we cannot agree a final account. We, as architects, issuing certificates on the fit-out contract, cannot agree a final account until the notional final account. We cannot issue a final account certificate until the notional final account has been settled between BLD01-ORG01 and the receivers. And we had no powers to issue certificates of payment on the new-build side, anyway. I believe that is just as arduous as well, and they can't seem to get any agreement as to who is owed what.

BLD01-ORG03-INT01: What date did construction work start on site?

BLD01-ORG03-REP01: Sorry, I don't know. I would rather you wrote down any financial and date questions. I would rather give you accurate information with the exact dates on it and figures rounded off, but more or less exact, than try to do it from memory.

BLD01-ORG03-INT01: What was the original duration of the building project?

BLD01-ORG03-REP01: I can't remember. I will have to find out for you.

BLD01-ORG03-INT01: What was the actual duration of the building project?

BLD01-ORG03-REP01: I will have to get back to you with that one too?

BLD01-ORG03-INT01: Was there any extension of time granted?

BLD01-ORG03-REP01: There was an extension of time issued on the new-build contract. Again, we were not empowered to issue that. There was no extension of time required on the fit-out.

BLD01-ORG03-INT01: How much extension of time was there on the new-build contract?

BLD01-ORG03-REP01: Four weeks, I think - mainly for external works.

BLD01-ORG03-INT01: Were any liquidated and ascertained damages imposed?

BLD01-ORG03-REP01: No.

BLD01-ORG03-INT01: What type of construction contract was used?

BLD01-ORG03-REP01: JCT 81 during the new-build contract, and IFC 84 for the fit-out contract.

BLD01-ORG03-INT01: During the new-build design sub-process, who was the construction cost consultant?

BLD01-ORG03-REP01: It was BLD01-ORG04?

BLD01-ORG03-INT01: Did the commercial property developer [BLD01-ORG02] select the construction cost consultant [BLD01-ORG04] or did your organization recommend the construction cost consultant [BLD01-ORG04] to the commercial property developer [BLD01-ORG02]?

BLD01-ORG03-REP01: The commercial property developer [BLD01-ORG02] selected the construction cost consultant [BLD01-ORG04].

BLD01-ORG03-INT01: How much previous experience of working with the construction cost consultant [BLD01-ORG04] did the commercial property developer [BLD01-ORG02] possess?

BLD01-ORG03-REP01: He had worked with BLD01-ORG04 on previous projects.

BLD01-ORG03-INT01: How much previous experience of working with the construction cost consultant [BLD01-ORG04] did your organization possess?

BLD01-ORG03-REP01: None whatsoever.

BLD01-ORG03-INT01: How much previous of working with the construction cost consultant [BLD01-ORG04] did you possess?

BLD01-ORG03-REP01: None.

BLD01-ORG03-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD01-ORG03-REP01: None, strictly speaking. There was nobody nominated or anything like that with a design clause against them. But in the normal course of events, we would tend to rely on specialists for such things as glazed screens. Obviously, the mechanical and electrical supplies were through specialists via BLD01-ORG01's building services in-house consultants. No, there was actually nothing on the project which had a specific design clause against it.

BLD01-ORG03-INT01: Did the commercial property developer [BLD01-ORG02] specify any of the design team members?

BLD01-ORG03-REP01: As I mentioned earlier, we had previously worked for the north-eastern division of BLD01-ORG01 several years ago, although we had no previous experience of working with the \*\*\*\*\* division of BLD01-ORG01. However, we had previously worked for two of the three members of the developer, BLD01-ORG02. Therefore, the developer [BLD01-ORG02] came directly to us to act as the lead consultant. We recommended the structural engineer [BLD01-ORG05] to the developer [BLD01-ORG02]. However, I also believe the end-user [BLD01-ORG01] already had knowledge of that particular structural engineer [BLD01-ORG05].

BLD01-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD01-ORG05] did your organization possess?

BLD01-ORG03-REP01: BLD01-ORG03 has had previous experience of working with the structural engineer [BLD01-ORG05].

BLD01-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD01-ORG05] did you possess?

BLD01-ORG03-REP01: I had previously worked with BLD01-ORG05.

BLD01-ORG03-INT01: How much previous experience of working with the representative of the structural engineering design consultant [BLD01-ORG05-REP01] did you possess?

BLD01-ORG03-REP01: None. I didn't know the chap that I was working with. I knew of the company, but not the actual project co-ordinator from BLD01-ORG05.

BLD01-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD01-ORG05] did the primary construction contractor [BLD01-ORG06] possess?

BLD01-ORG03-REP01: I don't think they had worked together before. It was a new relationship.

BLD01-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD01-ORG06] did the commercial property developer [BLD01-ORG02] possess?

BLD01-ORG03-REP01: Well, some of the members of BLD01-ORG02 had previous work experience with a certain manager within BLD01-ORG06. This is because BLD01-ORG02 had previous experience of working with BLD01-ORG08, who some of the managers of BLD01-ORG06 had previously worked for. Therefore, to answer your question, BLD01-ORG02, as an organization, did not have any previous experience of working with BLD01-ORG06.

BLD01-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD01-ORG06] did your organization possess?

BLD01-ORG03-REP01: None that I know of. Unless it was before my time. I have been here six years now. Somebody here may have worked with them in the past, but not that I am aware of. If I can just back track? The contractor [BLD01-ORG06], in certain respects, would have had some experience with the developer [BLD01-ORG02], because the main players in the organization had just joined the company following the demise of BLD01-ORG08. I understand that's how BLD01-ORG06 actually got the work, or was approached by the developer [BLD01-ORG02], because the developer [BLD01-ORG02], or one or two of the people within the development organization, knew of the actual individuals before they had to move there. So perhaps there was some experience. But as an organization, no.

BLD01-ORG03-INT01: During the new-build construction sub-process, how much previous experience of working with the primary construction contractor's [BLD01-ORG06] construction cost consultant did you possess?

BLD01-ORG03-REP01: No previous experience?

BLD01-ORG03-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the end-user [BLD01-ORG01]?

BLD01-ORG03-REP01: 5.

BLD01-ORG03-INT01: The commercial property developer [BLD01-ORG02]?

BLD01-ORG03-REP01: 3.

BLD01-ORG03-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG03-REP01: 4.

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: 5.

BLD01-ORG03-INT01: The end-user's in-house construction cost consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: 5.

BLD01-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: 5.

BLD01-ORG03-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG03-REP01: 4.

BLD01-ORG03-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations? During the new-build design sub-process, how frequently did you provide information to the construction cost consultant [BLD01-ORG04]?

BLD01-ORG03-REP01: 6 – *once daily*.

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: Again, at least *once daily*.

BLD01-ORG03-INT01: The commercial property developer [BLD01-ORG02]?



BLD01-ORG03-REP01: 3 – *several times monthly*.

BLD01-ORG03-INT01: During the new-build construction sub-process, how frequently did you provide information to the primary construction contractor [BLD01-ORG06]?

BLD01-ORG03-REP01: 5.

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: Again, I would say, *several times weekly* – 5. Obviously, the degrees to which you do this tends to fluctuate. You find that once you're into the contract, initially, exchanges of information with the contractor [primary construction contractor] – on this particular type of contract – is quite infrequent at first, until he starts to build it, and then it becomes much more frequent. But at the same time, your information flow between the consultants, i.e., between BLD01-ORG05 and us, initially, is very great – because you're developing the detailed design. And then once you get onto site and the information has already been handed to the contractor [primary construction contractor], it tends to phase out. So you've one with an early peak tailing off, and then another one, which starts at the bottom and then peaks later on.

BLD01-ORG03-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG03-REP01: Again, during the new-build construction sub-process, maybe 4 – *once weekly*.

BLD01-ORG03-INT01: During the fit-out contract, how frequently did you provide information to the end-user's in-house construction cost consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: During the design development, I would say it was about 5. And then afterwards, *several times monthly*. So, 3.

BLD01-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: Again, the same as before.

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: During both stages of the fit-out contract it was *several times weekly*.

BLD01-ORG03-INT01: The end-user [BLD01-ORG01]?

BLD01-ORG03-REP01: Again, during both stages it would have been *several times weekly*.

BLD01-ORG03-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? During the new-build design sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG03-REP01: It's difficult for me to actually answer this question, because not actually being an architect, I wasn't really involved in the design concept. But I can generalize, if that's any help? I would say that in the majority of instances conflict between the developer [commercial property developer] and the architect [architectural design consultant] is quite often. The architect wishes to provide the optimum statement and testimony to his art, and the developer wants the cheapest damn thing that he can get away with – unless the client or end-user is going to pay for it. So that is a fair old generalization. On this project, I am not aware of any great difficulties. So, on this project, I would say, *rarely* – 2.

BLD01-ORG03-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG03-REP01: *Quite often*. Would you like me to elaborate on that?

BLD01-ORG03-INT01: Yes, if you would like to.

BLD01-ORG03-REP01: Well, it is just that we said before that the quantity surveyor [BLD01-ORG04] had had a lot of experience of working for BLD01-ORG02. During the design stage you can see that they're acting under our instruction, and the problem was that they didn't really like that. They wanted to be the project manager from start to finish. In other words, they really wanted to fulfil the role of a lead consultant, even though they haven't got the experience to do that, and as such they tended to be slightly late with the information, as they would contact the developer [BLD01-ORG02] first. They would often send me copy letters that they had sent to the developer [BLD01-ORG02]. That, to me, is unnecessary, which is why I am saying, *quite often*. They would get my back up when they did that. I think however, it was unique to the situation. Again, generalizing, you tend not to get conflict very often, as everybody is working together as a team.

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: No. Not during BLD01!

BLD01-ORG03-INT01: During the new-build construction sub-process, rate the extent to which there was conflicting responsibilities or priorities that characterized your relationship with each of the following organizations. First of all, the structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG03-REP01: Again, a generalization, *quite often*. However, on this particular project, *rarely*.

BLD01-ORG03-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG03-REP01: Not very often! *Rarely*.

BLD01-ORG03-INT01: During the fit-out design sub-process, rate the extent to which there was conflicting responsibilities or priorities that characterized your relationship with each of the following organizations. First of all, the end-user's in-house construction cost consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: The end-user [BLD01-ORG01]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: During the fit-out construction sub-process, rate the extent to which there was conflicting responsibilities or priorities that characterized your relationship with each of the following organizations? First of all, the end-user [BLD01-ORG01]?

BLD01-ORG03-REP01: During BLD01 it was more *rarely* than *never*. Would you like me to qualify that?

BLD01-ORG03-INT01: Yes, if you would like to.

BLD01-ORG03-REP01: He was a project manager, and as such, he gets involved in procurement and fit-out elements, if you like. The contract we had with BLD01-ORG06 was a finishes contract. The fit-out consists more globally of finishes and fittings. They only had to provide a certain amount of permanent fitments. For example, benches, shelving and the like, and also things like CCTV and alarm systems were his responsibility. Occasionally, the co-ordination for BLD01 fell down for reasons which I stated before, and there would be a conflict of responsibilities or priorities. This was because you would be coming along after the event, and say the ceiling void requires an alarm cable putting in from one end of the store to the other. So the contractor [primary construction contractor] would then say: "Well, that is a direct works. You snagged the building and said the ceiling tiles are now broken, whereas they were alright before he came along." Therefore, trying to actually demonstrate to the end-user [BLD01-ORG01] that he was interfering with my responsibility to schedule defects and such like at that stage was sometimes difficult – because he was the client. It rarely happened, but it did happen. To a certain extent, that was removed during BLD02, because we had already been through the process and I could really read his mind, you know, and work out what he was going to do.

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: *Never*.

BLD01-ORG03-INT01: The end-user's in-house construction cost consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: *Never*.

BLD01-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: *Never*.

BLD01-ORG03-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following

organizations? During the new-build design sub-process, the construction cost consultant [BLD01-ORG04]?

BLD01-ORG03-REP01: *Quite often.*

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: Not very often. In fact, I would say *never*.

BLD01-ORG03-INT01: The commercial property developer [BLD01-ORG02]?

BLD01-ORG03-REP01: During BLD01, not very often! *Rarely*.

BLD01-ORG03-INT01: During the new-build construction sub-process, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with the structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: *Never*.

BLD01-ORG03-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG03-REP01: Not very often, but when they happened, they tended to be fairly big. Do you know what I mean? When we were going through the construction phase something did crop up, which became very adversarial. There was an enormous conflict of interest. I mean, to be specific, landscaping was the landscape! The contractor [BLD01-ORG06] had only budgeted for a certain amount of soft landscaping and, you know, we'd actually devised a scheme, which was five or six times what he'd actually budgeted. But his budget was ridiculous. Fortunately, we lost the battle at the end of the day because they put in a revised scheme based on what we had, but simply more than halving the number of plants – the same species, decreasing the density – and they got through the planning process. But if you were to look at the site, you would see that it's just devoid of any landscaping. Basically, it is ridiculous. But that is an example.

BLD01-ORG03-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG03-REP01: Not very often. Everything by that stage was kind of, well, wrapped-up. *Rarely*.

BLD01-ORG03-INT01: During the fit-out design sub-process, rate the extent to which disagreements or disputes characterized both your

individual and your organization's relationship with the end-user [BLD01-ORG01]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: The end-user's in-house construction cost consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD01-ORG07]?

BLD01-ORG03-REP01: *Never.*

BLD01-ORG03-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG03-REP01: *Never.* Again, going back to what I said earlier, we may have disagreed with them, but we never had any disputes. That was the nice thing about them. They could take it on the chin and sort it out.

BLD01-ORG03-INT01: During the fit-out construction sub-process, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with the end-user [BLD01-ORG01]?

BLD01-ORG03-REP01: Again, the same answers apply to the construction phase of the fit-out as they do to the design development phase.

BLD01-ORG03-INT01: With reference to the soft landscaping, if I can skip back just a few questions, BLD01-ORG03 was obviously employed as the landscape design consultant? Did the commercial property developer [BLD01-ORG02] know that your organization could provide landscaping design services, or did BLD01-ORG03 recommend themselves to the commercial property developer [BLD01-ORG02]?

BLD01-ORG03-REP01: No, we recommended that we did the landscaping in-house. Thereby lies another conflict, if you like, which was between us and the developer [BLD01-ORG02]. The developer [BLD01-ORG02] seemed to think that a service such as that would be encompassed within the global fee for the project. We charge separately for it.

BLD01-ORG03-INT01: Were there any other professional services that you provided to the commercial property developer [BLD01-ORG02] or to the end-user [BLD01-ORG01] during the building project that you recommended yourselves for or

that the commercial property developer [BLD01-ORG02] or the end-user [BLD01-ORG01] asked you to provide?

BLD01-ORG03-REP01: Yes, we have a planning service, which we used during the new-build design phase for the developer [BLD01-ORG02]. The reason we used the planning service internally was because we have a planning expert in the office.

BLD01-ORG03-INT01: BLD01-ORG03 therefore provided the new-build building design, landscaping design and planning services for the commercial property developer [BLD01-ORG02], and the fit-out design for the end-user [BLD01-ORG01]?

BLD01-ORG03-REP01: Yes, that's right.

## 20.2 INTERVIEW TRANSCRIPT BLD01-TRAN02

Organization Role: Construction Cost Consultant

Organization Code: BLD01-ORG04

Respondent Role: Boundary Representative for BLD01-ORG04

Respondent Code: BLD01-ORG04-REP01

Interviewer Code: BLD01-ORG04-INT01

BLD01-ORG04-REP01: Our involvement was project manager for the developer [BLD01-ORG02] for a new-build contract. We didn't have anything to do with the fitting-out contract. The fitting-out contract was dealt with by the client – the end-user – who was BLD01-ORG01. The developer [BLD01-ORG02] had nothing to do with it, and neither did we have anything to do with it. They had – BLD01-ORG01 – had their own quantity surveyors [BLD01-ORG07] involved in that. But we had nothing to do with that, in actual fact. I mean, basically, we built the new-build scheme to BLD01-ORG01's standard specification. The fit-out really had nothing to do with us. Yes, I appreciate they are inter-related. After all, you can't fit-out a new-build scheme that's not built to the requirements.

BLD01-ORG04-INT01: During BLD01, which was procured by design and build, where you involved with the design team during the development of the scheme design?

BLD01-ORG04-REP01: Yes, as far as the new-build scheme is concerned. I mean, you've got to appreciate the different types of construction. The new-build scheme is the scheme - the fit-out is standard. They can apply the fit-out specification to any building, basically. The new-build scheme is where the development is concerned. Yes, so far as developing the design is concerned, we were involved in that.

BLD01-ORG04-INT01: Who was your client?

BLD01-ORG04-REP01: My client was BLD01-ORG02.

BLD01-ORG04-INT01: What type of organization was your client [BLD01-ORG02]?

BLD01-ORG04-REP01: Well, I mean, they are pure developers [commercial property developers] who develop to a particular requirement. They do not develop speculatively. They



develop to a particular requirement. In other words, they knew there was a requirement for a supermarket in this medium-sized town in \*\*\*\* \*. They found the site; they acquired the site; and they developed it for a specific reason, i.e. for BLD01-ORG01.

BLD01-ORG04-INT01: How much experience of the building process did the commercial property developer [BLD01-ORG02] possess?

BLD01-ORG04-REP01: Well, he'd very good experience. I mean, he was an architect himself. The main person in the development organization [BLD01-ORG02] was an architect himself.

BLD01-ORG04-INT01: How much previous experience of working with the commercial property developer [BLD01-ORG02] did your organization possess?

BLD01-ORG04-REP01: We've worked with him for, I don't know, ten years now, perhaps?

BLD01-ORG04-INT01: How much previous experience of working with the commercial property developer [BLD01-ORG02] did you possess?

BLD01-ORG04-REP01: For the same amount of time.

BLD01-ORG04-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD01-ORG04-REP01: Well, we were the project managers for this contract; in which that particular client [BLD01-ORG02] believes in the design and build process.

BLD01-ORG04-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD01-ORG04-REP01: I was the project manager.

BLD01-ORG04-INT01: How would you describe the building project?

BLD01-ORG04-REP01: I mean, basically, it was to build a 15,000 square foot supermarket for a particular client. Sorry, for a particular end-user [BLD01-ORG01].

BLD01-ORG04-INT01: Were there any unusual or unforeseen site difficulties?

BLD01-ORG04-REP01: Yes, we had one major one, which was archaeological remains from blast furnaces – I can't even remember now, even though I was heavily involved with it at the time –

which were on the site. And we had interruptions while we had to get \*\*\*\*\* University Archaeological Department, who came in and eventually mapped all the workings they found under the surface and recorded it.

BLD01-ORG04-INT01: What date did construction work start on site?

BLD01-ORG04-REP01: June 19## to November 19##, that was the original programme.

BLD01-ORG04-INT01: Was there an extension of time granted?

BLD01-ORG04-REP01: Yes, we had to award an extension of time, due mainly to the archaeological dig. It was quite considerable time. I mean, the problems with the site were wholly on this archaeological problem. I mean, originally, it was a twenty-four-week contract period.

BLD01-ORG04-INT01: What type of construction contract was used?

BLD01-ORG04-REP01: It was a JCT design and build contract.

BLD01-ORG04-INT01: What tendering procedure was used?

BLD01-ORG04-REP01: We had a pre-tender scenario where we interviewed and looked at budget costs with, I think, it was about three contractors [primary construction contractors]. And then eventually negotiated the whole thing with BLD01-ORG06.

BLD01-ORG04-INT01: I am aware that BLD01-ORG06 went into receivership.

BLD01-ORG04-REP01: Yes. That was after the contract was completed, though. It was during the defects period. BLD02 was different.

BLD01-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD01-ORG03] did your organization possess?

BLD01-ORG04-REP01: We hadn't had any experience of working with them before.

BLD01-ORG04-INT01: How much previous experience of working with the structural engineering design consultant [BLD01-ORG05] did your organization possess?

BLD01-ORG04-REP01: BLD01-ORG05? We've had a lot of experience with them. We've worked with them quite a lot in the past, yes.

BLD01-ORG04-INT01: How much previous experience of working with the structural engineering design consultant [BLD01-ORG05] did you possess?

BLD01-ORG04-REP01: Similarly, I had worked with them a lot in the past.

BLD01-ORG04-INT01: How much previous experience of working with the representative [BLD01-ORG05-REP01] of the structural engineering design consultant did you possess?

BLD01-ORG04-REP01: Yes, I had worked with him before.

BLD01-ORG04-INT01: How much experience of working with the primary construction contractor [BLD01-ORG06] did your organization possess?

BLD01-ORG04-REP01: None. We hadn't had any experience of working with them before.

BLD01-ORG04-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD01-ORG02]?

BLD01-ORG04-REP01: Well, it's difficult to answer that. I mean, it depends on what aspect you're talking about. Are you talking about the developer [commercial property developer] as far as he is associated with the building contract, or the developer [commercial property developer] as associated with the professionals? Because I think, in actual fact, they take on a different guise. As far as the building contract is concerned, he was probably number 5. He was probably *very reputable*. As he, not so much on this one but on BLD02, he felt very aggrieved that people had lost money out of the contractor [BLD01-ORG06] going into liquidation. And much against my advice, etc., he wanted to pay people directly. But obviously, as a professional, I couldn't allow him to do that. So, therefore, one must assume that he's *very reputable* – that he felt responsible that these people had actually lost money out of the contractor [BLD01-ORG06] going into liquidation. I think, as far as the professionals are concerned, he's probably slightly different. Now, he demands a lot of attention. He's a very difficult client, actually.

BLD01-ORG04-INT01: How would you rank the commercial property developer [BLD01-ORG02] from a professional perspective?

BLD01-ORG04-REP01: I suppose he's number 3 on that. I suppose he's, you know, almost verging on 2, I think – perhaps even as far as the professionals are concerned.

BLD01-ORG04-INT01: The end-user [BLD01-ORG01]

BLD01-ORG04-REP01: Professionally, I suppose they would be 4.

BLD01-ORG04-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG04-REP01: Well, I mean as far as reputation is concerned, on that scale of reputation they were probably very good. They were probably 4 or 5, I would think.

BLD01-ORG04-INT01: Which of the two responses do you think is most appropriate?

BLD01-ORG04-REP01: Probably 5. No, sorry, 4. Probably 4. There were a couple of things I wasn't happy with. In fact, when I think about it, probably 4.

BLD01-ORG04-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG04-REP01: I think they're 5.

BLD01-ORG04-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG04-REP01: Probably 3, I would have thought.

BLD01-ORG04-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations? During the new-build design sub-process, how often did your organization provide information to the commercial property developer [BLD01-ORG02]?

BLD01-ORG04-REP01: At least 6 and probably 7. If I can answer it that way? You know, as far as the developer [BLD01-ORG02] is concerned, we were in contact with him every day, and sometimes it could be several times a day. Overall, it was probably 6.

BLD01-ORG04-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG04-REP01: Again, it's peaks and troughs. It depends on the time and the process, but it's probably 4 or 5. Overall, it was probably 4, I would have thought.

BLD01-ORG04-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG04-REP01: About the same, I would have thought.

BLD01-ORG04-INT01: During the new-build construction sub-process, how often did your organization provide information to the commercial property developer [BLD01-ORG02]?

BLD01-ORG04-REP01: Probably less. Probably 4, I would have thought.

BLD01-ORG04-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG04-REP01: Probably 5.

BLD01-ORG04-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG04-REP01: Probably 4, I would have thought.

BLD01-ORG04-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG04-REP01: Probably 5, again.

BLD01-ORG04-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, during the new-build design sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG04-REP01: Probably 2, you know, *rarely*.

BLD01-ORG04-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG04-REP01: Probably 4, I would say.

BLD01-ORG04-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG04-REP01: Probably 2.

BLD01-ORG04-INT01: During the new-build construction sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG04-REP01: That was probably 1.

BLD01-ORG04-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG04-REP01: Again, that was probably 4.

BLD01-ORG04-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG04-REP01: 2.

BLD01-ORG04-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG04-REP01: Probably 3.

BLD01-ORG04-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, during the new-build design sub-process, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG04-REP01: Probably 2.

BLD01-ORG04-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG04-REP01: 3.

BLD01-ORG04-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG04-REP01: That was probably 1.

BLD01-ORG04-INT01: During the new-build construction sub-process, how would rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG04-REP01: 2.

BLD01-ORG04-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG04-REP01: That was probably 4.

BLD01-ORG04-INT01: The structural engineering design consultant [BLD01-ORG05]?

BLD01-ORG04-REP01: Probably 1.

BLD01-ORG04-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG04-REP01: 4, probably.

BLD01-ORG04-INT01: Before we start discussing BLD02, I would like to ask you some general questions about your organization.

BLD01-ORG04-REP01: I think, sorry, before you do that. I know you're trying to cut down the time etc. There was a totally different concept on BLD02, and I think you've got to appreciate that. We were project managing BLD01. We were running the job totally and were responsible for it. BLD02 was a different scenario. Therefore, I don't know whether you're going on to ask these sort of questions again? However, I think the disagreements and disruption was perhaps less on BLD02 than it was on BLD01.

BLD01-ORG04-INT01: Why do you think that was the case?

BLD01-ORG04-REP01: I think it was two reasons: one was because it was a traditional contract at BLD02, where there was a tender process; and two, I think the architect [BLD01-ORG03] had learned a lot from BLD01 on what was required by the developer [BLD01-ORG02], where he hadn't at BLD01. He was not aware of that, and was, if I can be harsh, very uncommercial in his approach at BLD01. I think he'd learned his lessons by BLD02.

BLD01-ORG04-INT01: Why was the form of contract changed for BLD02 following BLD01?

BLD01-ORG04-REP01: That was due to the developer [BLD01-ORG02] and his fellow partners. I mean, don't get me wrong, I don't agree with design and build. I am pro-traditional. However, one of the developer's [BLD01-ORG02] partners on this situation insisted on design and build.

BLD01-ORG04-INT01: Why do you prefer the traditional form of procurement?

BLD01-ORG04-REP01: I think the role of the professional is diminished, and no matter what happens on a design and build contract, there is no shadow of doubt about it, the end product is built down to a price and not built up to a specification. And that's the total difference on it. I think we are producing inferior buildings by going down the design and build route.

BLD01-ORG04-INT01: Do you think your overall professional relationship with architectural design consultant [BLD01-ORG03] was better during the BLD02 because you were both working to the full specification?

BLD01-ORG04-REP01: Yes, in general terms that would be true. This was a particular instance where there was two contracts running

one after the other. We may have had the same problems with the architect [architectural design consultant] on a traditional contract if we had come to it first, because of their uncommercial approach to it. I do believe the professionals have got to have a commercial approach to the whole building process and to what is required from the building at the end of the day. In other words, we're not trying to build edifices in the sky. We've got to build practical buildings that are built within a specification parameter and within a price. But I believe we do that far better under a traditional method than we can do it under a design and build scenario - where there is no shadow of doubt, you are building inferior buildings by building on the design and build scenario. Actually, BLD01 and BLD02 are an interesting pair of building projects for you to study, because of the two contractual scenarios. But I don't want you to get the wrong impression. I think we would have had probably as many conflicts with the architect [architectural design consultant] if we'd gone straight in with a new architect [architectural design consultant] on a traditional route. I don't think the conflicts were brought about by a design and build scenario.

BLD01-ORG04-INT01: Do you think the conflict episodes were the result of the new professional relationship that existed between your organization and the architectural design consultant [BLD01-ORG3]?

BLD01-ORG04-REP01: Yes. Basically, as I said before, I don't think they had a commercial approach to the whole process, which you can have under a traditional method. You don't have to be a design and build person to have a commercial approach to things. You can have a commercial approach under a traditional method of achieving your contract.

BLD01-ORG04-INT01: Because your organization did not possess any previous experience of working with the primary construction contractor [BLD01-ORG06], do you think a similar situation applied?

BLD01-ORG04-REP01: I mean, again, if one does go down the traditional route, a contractor [primary construction contractor] should do what he is best at - which is building buildings. The architect [architectural design consultant] should do what he's best at - which is designing buildings. I should be able to do what I am best at - which is costing buildings. I think as soon as you mix up the roles, you have a problem. And, you were asking questions about disputes with the contractor [primary construction contractor], if you have a



traditional method of procurement, and if you set the parameters out correctly, you should have no disputes. And that's why disputes arise – because you haven't set out the parameters correctly. You haven't told the contractor [primary construction contractor] what he is to build and what conditions you are putting on him. Whether it's programme; whether it's method of operation; whether it's phasing of the programme; or whether it's weather conditions that you're telling him – that he should start in January or that he should start in June – or whatever. It's because the professionals have not set the parameters correctly that you have disputes.

BLD01-ORG04-INT01: To what extent do you think it would have been more appropriate to have procured the first building project [BLD01] by a traditional method as opposed to design and build? Do you think this change would have enabled the separate organizations to have clearly defined their individual professional roles and responsibilities?

BLD01-ORG04-REP01: No, I don't think so. I don't think so. It's a totally different attitude you've got to take on both types of contract.

BLD01-ORG04-INT01: So you do not think swapping the methods of procurement would have enabled the organizations to have effectively defined their roles and responsibilities?

BLD01-ORG04-REP01: No, I don't think so. In fact, I mean to be perfectly honest, that was the biggest problem on the job. The architects [BLD01-ORG03] could not differentiate their role between – well, especially on BLD01 – between a design and build contractor, where they were acting for the developer on the new-build contract, and they were acting for the end-user [BLD01-ORG01] on the fit-out contract. They could not separate and have this mythical wall down the middle to say: "That's one contract and that's the other contract. I serve both of these masters, and I serve both of these masters to the best of my ability." They were unable to separate these roles.

BLD01-ORG04-INT01: Do you think the architectural design consultant [BLD01-ORG03] could have alleviated this problem if two separate project leaders had been employed during the course of the two building projects?

BLD01-ORG04-REP01: No, I don't think so, because we didn't need to have that. I think, again, it was the natural uncommercial approach of the architectural practice [BLD01-ORG03]. We had a

lot of conflict on the BLD01 project, and I have a lot of strong beliefs why we had these conflicts.

BLD01-ORG04-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD01-ORG04-REP01: Well, we're quantity surveyors, cost engineers – whatever that means – project managers, and we also offer building surveying services.

BLD01-ORG04-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD01-ORG04-REP01: We do everything but, probably, we are more allied to commercial development.

BLD01-ORG04-INT01: How many offices does your organization possess?

BLD01-ORG04-REP01: Just the one in this city.

BLD01-ORG04-INT01: What national or international geographical locations would your organization provide a service to a potential client?

BLD01-ORG04-REP01: We cover the whole of the UK.

BLD01-ORG04-INT01: What year was your organization established?

BLD01-ORG04-REP01: 19##.

BLD01-ORG04-INT01: How many people are employed by your organization?

BLD01-ORG04-REP01: There are three surveyors, a secretary, and myself.

BLD01-ORG04-INT01: How would you define the corporate philosophy of your organization?

BLD01-ORG04-REP01: We provide a personal service to our clients. A personal service, obviously, from the financial aspect. But it is a very personal service that we do provide to our clients.

BLD01-ORG04-INT01: How did your organization become initially involved with the commercial property developer [BLD02-ORG02] during these two building projects [BLD01 and BLD02].

BLD01-ORG04-REP01: On these projects [BLD01 and BLD02], I don't know. I've known the main managing director of the company [BLD02-ORG02] for a long time - ten or fifteen years?

Well, he was with a different company and I was with different company.

## 20.3 INTERVIEW TRANSCRIPT BLD01-TRAN03

Organization Role: Structural Engineering Design Consultant

Organization Code: BLD01-ORG05

Respondent Role: Boundary Representative for BLD01-ORG05

Respondent Code: BLD01-ORG05-REP01

Interviewer Code: BLD01-ORG05-INT01

BLD01-ORG05-INT01: For the purposes of this research project I have separated BLD01 and BLD02 into four sub-processes: a new-build design sub-process; a new-build construction sub-process; a fit-out design sub-process; and a fit-out construction sub-process. The architectural design consultant [BLD01-ORG03] has informed me that your organization was involved during the fit-out sub-processes of the two building projects. Is this correct?

BLD01-ORG05-REP01: No, not on the fit-out, because we were only appointed as structural consultants [structural engineering design consultant] for the new-build scheme. The actual fit-out? We had nothing to do with it at all. Neither in terms of advising somebody who was fitting-out, nor looking at the fit-out works. Our involvement stopped, effectively, once the new-build phase of the project was completed. We saw no . . . or we had no responsibility, nor did we actually look at the fit-out. The fit-out is a cladding exercise, rather than a structural exercise. They [BLD01-ORG03] may be confusing BLD01 with other jobs. I mean, we are multi-disciplinary, so we have M & E services engineers [building services engineering design consultants] here who would be involved with fit-out, because, obviously, you'd be fitting lights and ducts and the like. So maybe he [BLD01-ORG03-REP01] was a bit confused. But I can confirm that we weren't involved with the fit-outs.

BLD01-ORG05-INT01: Who was the client organization?

BLD01-ORG05-REP01: BLD01-ORG02.

BLD01-ORG05-INT01: What type of organization was the client [BLD01-ORG02]?

BLD01-ORG05-REP01: A developer client [commercial property developer].

BLD01-ORG05-INT01: Why did the commercial property developer [BLD01-ORG02] decide to commission the building project?

BLD01-ORG05-REP01: I would imagine profit; in that he [BLD01-ORG02-REP01] had identified a site which had . . . there were opportunities for retail developments in both of the medium-sized towns in \*\*\*\* \* that he had identified. I don't know whether you know the history of what happened?

BLD01-ORG05-INT01: A little. I would, however, be very interested to hear your interpretation.

BLD01-ORG05-REP01: The site for BLD01 was an old rundown bus depot. It was being used as an ambulance station for part of the . . . I don't know whether it was the \*\*\*\*\*, but there was an ambulance depot there. BLD01-ORG02 had come up with a small piece of land on the outskirts of the medium-sized town where they built a brand new ambulance station, and transferred the ambulance station there; thus, releasing a site that they could then put a supermarket on. So, it was the two sites. Although we were only involved – well, in fact, we were involved on the other site as well – in building the ambulance depot. But the two things stacked-up. There was a site which was pretty crummy, and by offering someone new premises, you know, elsewhere, he got the site. He had also brought in BLD01-ORG01, who, obviously, wanted to be in the medium-sized town as part of an overall expansion in the \*\*\*\*\* area. So there was a lot of liaison between the health authority, in terms of them getting the best possible deal. And in the end, they were given more than they had originally asked for. But our client [BLD01-ORG02-REP01], I think, was quite happy at the end of the day, because what he paid for the site, compared to what I believe the end-user [BLD01-ORG01] bought the site for, or bought the end-product for, you know, yielded a very considerable profit. So, you know, I think he [BLD01-ORG02-REP01] was a happy man!

BLD01-ORG05-INT01: How much previous experience of the building process did the commercial property developer [BLD01-ORG02] possess?

BLD01-ORG05-REP01: I think he [BLD01-ORG02-REP01] was quite knowledgeable, because this particular client [BLD01-ORG02-REP01] used to be a retail site hunter for ORGANIZATION 1A – who then became ORGANIZATION 1B. He [BLD01-ORG02-REP01] used to be responsible for actually supervising building

projects. So he [BLD01-ORG02-REP01] knew how buildings were put together. But he [BLD01-ORG02-REP01] also understood very well how sites were acquired and how the retail side of the industry worked. So he [BLD01-ORG02-REP01] was quite knowledgeable in terms of construction and disciplines – architects, engineers – confidence wise!

BLD01-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD01-ORG02] did your organization possess?

BLD01-ORG05-REP01: We . . . this job was the first job that actually got to site. But we had known BLD01-ORG02 for, I guess, it must be five or six years. We used to do speculative work on the basis of no . . . if the job didn't come to fruition, we wouldn't get paid. If the job did come to fruition, we'd obviously be paid. And we'd done quite a bit of work that never, ever came off, so to speak. But this was the first major job that went through, and then it was very quickly followed by BLD02. But we must have known BLD01-ORG02-REP01 for about five or six years.

BLD01-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD01-ORG02] did you possess?

BLD01-ORG05-REP01: Yes, I did have previous experience of working with BLD01-ORG02. But on the basis that I've described: in terms of looking at schemes and putting structural information together; in terms of him putting an overall package together. But this was the first one that went through, you know, from the feasibility stage through to the design stage, and then to the construction stage. We had done a lot of feasibility-type work which came to nothing.

BLD01-ORG05-INT01: How did your organization become involved with the commercial property developer [BLD01-ORG02] during the building project?

BLD01-ORG05-REP01: The relationship that we have with this particular developer [commercial property developer] is that he [BLD01-ORG02-REP01] uses us almost exclusively. Because he [BLD01-ORG02-REP01] appreciates that not all of his jobs will come to fruition, and hence he gives us the opportunity to keep coming back. So we knew nothing about the site, and he [BLD01-ORG02-REP01] basically said: "I've got a site, and I've got a potential tenant signed up." And we started the process off as

normal, and this one obviously went right the way through, rather than stopping when the wheel fell off.

BLD01-ORG05-INT01: How did the architectural design consultant [BLD01-ORG03] become introduced to the commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: I don't know. We didn't recommend them. The architect [BLD01-ORG03] would have been appointed in parallel. Now, my understanding of the way BLD01-ORG02 works is that he [BLD01-ORG02-REP01] would have more than one architect [architectural design consultant]. In essence, he's [BLD01-ORG02-REP01] got one or two engineers that he uses, too. In terms of architects [architectural design consultants], I think he [BLD01-ORG02-REP01] would go to a lot more architects [architectural design consultants] with potential schemes. I suspect it was . . . you know, he [BLD01-ORG02-REP01] just happened to choose BLD01-ORG03 on this occasion. Now BLD01-ORG03 might have been approached before, I don't know. But on the schemes that we've worked-up – we've come across a number of architects [architectural design consultants] – I don't think we'd come across BLD01-ORG03 with BLD01-ORG02 before. But BLD01-ORG03 were known to us. We certainly didn't introduce them. They were presented, effectively, as the team.

BLD01-ORG05-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD01-ORG05-REP01: Our role was structural engineer [structural engineering design consultant], and our appointment and duties are generally those as laid down in the Association of Consulting Engineers Conditions of Engagement for Structural Engineering Work, where an architect [architectural design consultant] is appointed by the client. So they're fairly formal duties and, effectively, our appointment was in-line with those.

BLD01-ORG05-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD01-ORG05-REP01: I was the project partner involved, and I was responsible for the team of . . . well, the group that undertook the job, which were a chartered engineer and a technician. The chartered engineer carried out the design-type work; the technician did the drawings, etc. But, effectively, I was the person responsible in BLD01-ORG05, you know, for the job going right.

BLD01-ORG05-INT01: How would you describe the building project?

BLD01-ORG05-REP01: It is a 15,000 square-foot supermarket, traditional construction, steel portal frame, reinforced concrete foundations and ground slab, and external car parking, which I think was just a combination of block pavements and tarmac.

BLD01-ORG05-INT01: Were there any unusual or unforeseen site difficulties?

BLD01-ORG05-REP01: Yes. I recollect the site was adjacent to the river which runs through the town. The site was quite low lying and the river once came up very high and didn't burst its banks, but we were concerned that the site might flood. Enquiries with the local authority confirmed they had no records of the site flooding. But there was an old watercourse, which was culverted – it used to come from a mill. Again, my memory is going. There was either a mill or some other old industrial facility going back one-hundred-and-fifty years that had a watercourse running through it as part of its operation, and that went down and discharged into the river. Over the years the site was built-up and this watercourse was used as a drain, but culverted. It went right underneath the proposed floor slab. So as part of the overall development the thing had to be grubbed-up and the watercourse diverted, because it was still possibly live from some of the houses that were further up the site. So it was about . . . it was something like 1800 diameter. I mean, it was quite a large culvert running underneath the floor slab. We ended up with some substantial excavations to remove it, and then back fill it, and then put the foundations and floor slab over it. That was the major one. The other one? Externally, the site had some retaining walls . . . some existing retaining walls of unknown strength, and we just had to be very careful that we didn't do anything to upset them in order to get the car parking . . . get as much car parking on the site as possible. Those were the only two that I recollect.

BLD01-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD01-ORG03] did your organization possess?

BLD01-ORG05-REP01: Prior to that time I would have said quite little. I guess we might have only worked . . . structurally, we hadn't worked with them, I think. On the building services side, we had, but not very much. I mean, I am guessing, but maybe less than half a dozen projects prior to that.



- BLD01-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD01-ORG03] did you possess?
- BLD01-ORG05-REP01: I don't think so. I am pretty certain I hadn't, in detail. I mean, I may well have, again, come across them, but not in any great depth.
- BLD01-ORG05-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD01-ORG03-REP01] did you possess?
- BLD01-ORG05-REP01: This was the first time I had worked with him [BLD01-ORG03-REP01].
- BLD01-ORG05-INT01: How much previous experience of working with the construction cost consultant [BLD01-ORG04] did your organization possess?
- BLD01-ORG05-REP01: I had none, most definitely! That was the first time I'd met BLD01-ORG04-REP01; albeit, I believe, he was known to our \*\*\*\*\* office. Coming from \*\*\*\*\* , they may well have worked together, but I've not worked with BLD01-ORG04-REP01 before.
- BLD01-ORG05-INT01: How much previous experience of working with the construction cost consultant [BLD01-ORG04] did this office of your organization possess?
- BLD01-ORG05-REP01: I don't think we had worked with BLD01-ORG04 before.
- BLD01-ORG05-INT01: To what extent does your organization exchange information between the regional offices about previous clients or construction-related organizations?
- BLD01-ORG05-REP01: Very badly!
- BLD01-ORG05-INT01: Did you contact your \*\*\*\*\* office in order to gain information regarding the construction cost consultant [BLD01-ORG04]?
- BLD01-ORG05-REP01: I wouldn't have automatically known they had worked with him before. We have no formal mechanism that is available to me as partner, which says, here are all of our clients and companies that we have worked with in the past. The information is there if I want to go hunting for it, but in terms of actual, sort of, distribution of information through offices, and say regular updating of clients, I would have to go looking for it rather than it be presented to me. So I know that I hadn't worked with

BLD01-ORG04-REP01: I am pretty certain the office hadn't. But we may have worked with him in \*\*\*\*\*. But I wouldn't have known that automatically. It would only be by chance.

BLD01-ORG05-INT01: To what extent did the primary construction contractor [BLD01-ORG06] influence the structural engineering design?

BLD01-ORG05-REP01: None.

BLD01-ORG05-INT01: How much previous experience of working with the primary construction contractor [BLD01-ORG06] did your organization possess?

BLD01-ORG05-REP01: None. It was a new relationship.

BLD01-ORG05-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations. First of all, the commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: 4.

BLD01-ORG05-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG05-REP01: 4.

BLD01-ORG05-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG05-REP01: I would say 4, again.

BLD01-ORG05-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG05-REP01: 4.

BLD01-ORG05-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all during the new-build design sub-process, how frequently did your organization provide information to the commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: In general, we didn't speak an awful lot to our client [BLD01-ORG02], formally. It would only be, sort of, informally. I mean, generally, he [BLD01-ORG02-REP01] might ring and say: "What's happening?" As I recollect in the pre-construction phase [new-build design sub-process] we didn't have many meetings. In the

construction phase [new-build construction sub-process] the meetings became a bit more formal. I suspect that is because in the design stage we're not always sure that the job is going to actually progress. If you remember, it's a speculative job until such time that everybody is signed-up. So there is a limit . . . some work is done, I mean, we would always carry-out some site investigation and background search, but when that is completed, we still don't necessarily know that the job is going to go-ahead until the client [BLD01-ORG02] has effectively signed-up all of the legal agreements. And it's only once he's [BLD01-ORG02-REP01] done that, will he say, you know, legally enter into an appointment with us. So it tended to be not very often.

BLD01-ORG05-INT01: Is there a response on the scale that would reflect this situation?

BLD01-ORG05-REP01: I would have said probably *less than once monthly* with the client [BLD01-ORG02], from my personal point-of-view.

BLD01-ORG05-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG05-REP01: Probably *once monthly*. This is because my recollection of it was . . . it was quite a long period from the time that which we became aware of the job, 'til the job was actually committed to going ahead. So it's different. These jobs with this particular client [BLD01-ORG02], but in line with all speculative jobs, are different to what I would call a 'normal job': where a client comes along and appoints us at the beginning and you start off with a full design team and go through all of the duties. This one is very much the case of: "Well, I've potentially got a job; I've got a site; I've got an end-user; and I want to develop it." But there's no formal commitment of an appointment. They tend to drag on, rather than, perhaps, more established clients – private companies, industrialists or educationalists – who know they want to build something, and they come to you and say: "We've made a decision to build and we're going to do it." So it tends to be quite slow. Hence, the communication is very informal and perhaps infrequent in the early stages.

BLD01-ORG05-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG05-REP01: I would have said *less than once monthly*. This one, again . . . it was quite small. On a traditional contract we would tend to prepare sketch designs for alternatives and have the quantity surveyor [construction cost consultant]

measure them, cost them and determine with the client that it was alright. On this particular job, because it is a new-build completion – fairly straight forward – the quantity surveyor [construction cost consultant], almost before we got involved, will have just come up with a cost per square metre for a typical supermarket. And hence, in terms of us feeding information to him for cost checking, we wouldn't do an awful lot. I mean, basically, there was a cost for the job, which reflected a basic shed. I mean, there was nothing particularly difficult about it. So it's slightly different from, again, more traditional jobs, where you would do, perhaps, a lot of feasibility work and alternatives. This didn't really lend itself to alternatives. It was brickwork skin, lightweight metal deck roofing and normal reinforced concrete floor slab and foundations.

BLD01-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations. First of all during the new-build design sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: I don't think we had any conflict at all. So I would say *never*.

BLD01-ORG05-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG05-REP01: In the new-build design sub-process, I would say *rarely*. The reason I say that is, quite often, from the structural point-of-view, there is a conflict of responsibility where walls are concerned, and particularly wall ties. Often it's . . . one's not quite sure whether it's the architect [architectural design consultant] who should be doing this or the engineer [structural engineering design consultant] who should be doing this. But that's not particular to this project; it's more general to that type of construction. But I would say it was rare for there to be conflict.

BLD01-ORG05-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG05-REP01: *Never*, on this project.

BLD01-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations. First of all during the new-build design sub-process, rate the extent to which disagreements or

disputes characterized both your individual and your organization's relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: Again, it would be *never*.

BLD01-ORG05-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG05-REP01: I can't remember having a dispute. No, I can't remember having one. So I would have to say *never*.

BLD01-ORG05-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG05-REP01: *Never*. As you can gather on this one the QS [construction cost consultant] was quite silent, as far as we were concerned. I mean . . . I suppose . . . that's in a sense, because it was, you know, a design and build contract on a fairly simple job, and we weren't doing an awful lot of design work. So we didn't have to give an awful lot of information to the QS [construction cost consultant].

BLD01-ORG05-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? During the new-build construction sub-process, how frequently did your organization provide information to the commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: Probably with the client [BLD01-ORG02] – *once monthly*.

BLD01-ORG05-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG05-REP01: In the construction phase, probably *several times monthly*.

BLD01-ORG05-INT01: The primary construction contractor [BLD01-ORG06]?

BLD01-ORG05-REP01: I would guess, on average, it would be *once weekly*. Sorry, in terms of all of those [pointing to the list of examples], on average, it would be *several times weekly*, throughout the pure construction phase. I mean, I am looking at the combination of . . . I mean, there was telephone, faxes, drawings, and the normal meetings.

BLD01-ORG05-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG05-REP01: Again, *several times weekly*. I mean, in terms of when you say: "provided information", I am thinking in terms of communicating. I mean, we would be contacting him in

respect of our production drawings, his production drawings, and also drawings that were being generated by the contractor [primary construction contractor]. So, I mean, it is fairly frequently!

BLD01-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations. During the new-build construction sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: Again, we *never* had any conflict with our client [BLD01-ORG02]; albeit . . . but I don't know whether you are aware? Up to the pre- . . . well, up to the job becoming real, our client was BLD01-ORG02. When the contractor [BLD01-ORG06] was appointed, then we were all – the team, but I will speak for ourselves – we were novated to BLD01-ORG06. And then, effectively, BLD01-ORG06 became . . . well, BLD01-ORG06 were responsible for paying our bills. Hence, from that point-of-view, because it was a design and build contract, the client [BLD01-ORG02] had appointed a single contractor – BLD01-ORG06 – to carry out the design and building. So our client, effectively, albeit I still would look to BLD01-ORG02 as being our overall client, we now had another client in the middle – who was BLD01-ORG06 – because they were effectively, you know, paying us. So I've got no conflict with the developer [BLD01-ORG02]. But, I mean, he [BLD01-ORG02-REP01] may not strictly be our client on the construction phase [new-build construction sub-process].

BLD01-ORG05-INT01: In which case, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the primary construction contractor [BLD01-ORG06]?

BLD01-ORG05-REP01: Yes. I would say . . . there was a particular instance on here where we did have a conflict of responsibility; albeit it might come into your next one. In general, when we design something – again, just to put it into perspective – on a traditional form of contract, we would design something, the contractor [primary construction contractor] would tender to build in accordance with that design, and if he didn't, we would quite rightly pull him up and say: "That's not correct." On this one, and on design and build in general, we carry out the same design,

but the person who is our client is now the contractor [primary construction contractor], and we can often see something and we say: “We’re not happy with that. That’s not actually what we specified.” And the contractor [primary construction contractor] will turn around and say: “Well, sorry. That’s all we’re doing. We’ll take all of the risk. We’re quite happy. We’ve done this a hundred times before.” And we have a conflict, because effectively, I suppose, we would insist upon a higher standard or make more fuss on a traditional contract. Because we have no axe to grind with the contractor [primary construction contractor]: “We’re just pointing out”, you know, “that’s what the drawings say. That’s what the specifications say. You’re not doing it in accordance with it. Therefore, do it in accordance with it.” Because, you know, we are acting on behalf of our client, who is not the builder [primary construction contractor]. When our client is the builder [primary construction contractor], or when we’ve been transferred to the builder [primary construction contractor], we’re sometimes . . . it’s a difficult situation, because we see something and we say: “That’s not right” or “That’s not what the drawings say.” And the contractor [primary construction contractor] says: “I am now the design and build contractor and I don’t care. I am quite happy with leaving it. We’ll take the risk.” But there is a conflict, because we can’t . . . it’s extremely difficult to push too much and make a stance, because he is the client and he is the man who is paying you. And whilst we are the designers [structural engineering design consultant], normally designing directly to a client, in this case we are designing through the contractor [primary construction contractor], and the contractor [primary construction contractor] is saying: “I am perfectly happy with this”, where the construction doesn’t actually quite match the design.

BLD01-ORG05-INT01: Is there a response on the scale that would reflect this situation?

BLD01-ORG05-REP01: I mean it didn’t happen *quite often*, but there were a couple of instances. So I would probably say . . . I mean, you probably haven’t got a scale that actually reflects it. I mean there were probably a couple of items - one related to the culvert, which obviously was a major culvert, and it was what they did in terms of the back-filling which we didn’t agree with and which wasn’t on the drawings. But, nevertheless, it was put in and, you know, we didn’t like it. But we we’re just told: “Well, that’s what we’ve done and that’s what we’re doing.” So, I think, I would say . . .

I mean, *quite often* is wrong. And I suppose *rarely* . . . because, I think, *rarely* it will happen. I think on most design and build jobs, I am sure engineers [structural engineering design consultants] will find themselves in the same situation – where they’ve been novated. If you haven’t been novated and you are still appointed directly by the client, and I suppose strictly on a design and build you can’t be, the contractor [primary construction contractor] is the design and build arm. So it’s probably *rarely*.

BLD01-ORG05-INT01: The construction cost consultant [BLD01-ORG04]?

BLD01-ORG05-REP01: No, not that I can recollect. So, *never*.

BLD01-ORG05-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG05-REP01: *Rarely*.

BLD01-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization’s relationship with each of the following organizations. During the new-build construction sub-process, rate the extent to which disagreements or disputes characterized both your individual and your organization’s relationship with the primary construction contractor [BLD01-ORG06]?

BLD01-ORG05-REP01: Again, bearing in mind that the design responsibility turned itself into a site situation with regard to the culvert – I mean, that was effectively where the problem arose. I mean, we see ourselves . . . we are responsible for design. The contractor [primary construction contractor], by his contract, is responsible for design and construction. We had a disagreement on this particular aspect where the contractor [BLD01-ORG06] effectively said: “Fine, I hear what you say, but I am doing it this way.” So we leave our drawings as they were and he builds it in a slightly different way. So it’s between *rarely* and *quite often*. I would say, *rarely*.

BLD01-ORG05-INT01: The commercial property developer [BLD01-ORG02]?

BLD01-ORG05-REP01: *Never*.

BLD01-ORG05-INT01: The architectural design consultant [BLD01-ORG03]?

BLD01-ORG05-REP01: In terms of operation, again, I would say, *rarely*.

BLD01-ORG05-INT01: The construction cost consultant [BLD01-ORG04]?



BLD01-ORG05-REP01: No, *never*. He was quite silent from our point-of-view at that stage.

BLD01-ORG05-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD01-ORG05-REP01: We can provide civil engineering, structural engineering, building services – which are mechanical and electrical engineering – and public health engineering. All primarily in connection with the building industry. So the civil work that we do is effectively drainage and infrastructure in connection with buildings, rather than out-and-out highway design. We generally do not do project management. We don't have project managers as a discipline, nor as a skill. We don't take the contract administrator's job in terms of JCT forms of contract, generally, it's the architect [architectural design consultant]; albeit, you know, we have to administer the contract, I mean, not the contract as in JCT, but we've got to administer our duties. But, generally, we don't take the, sort of, prime lead.

BLD01-ORG05-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD01-ORG05-REP01: I would say we are a general-purpose consultant engineer. So we cover retail, leisure, education, industrial, hotels, schools. I mean, we cover the whole gamut of engineering in connection with buildings. There is probably not a field that we have not done. However, we don't do anything in terms of power, power generation, highways or transport. It's primarily building. So it's things like office buildings, industrial sheds, leisure pools and schools. But whilst we could do power station work, I mean, we haven't done it before, we could bring in the skills to do it. It's mainly buildings and their infrastructure.

## 21 APPENDIX L: BUILDING PROJECT 2 (BLD02) INTERVIEW TRANSCRIPTS

### 21.1 INTERVIEW TRANSCRIPT BLD02-TRAN01

Organization Role: Architectural Design Consultant

Organization Code: BLD02-ORG03

Respondent Role: Boundary Representative for BLD02-ORG03

Respondent Code: BLD02-ORG03-REP01

Interviewer Code: BLD02-ORG03-INT01

BLD02-ORG03-INT01: Who was the end-user?

BLD02-ORG03-REP01: The end-user for this particular project was the same as for the previous project [BLD01], BLD02-ORG01.

BLD02-ORG03-INT01: Who was the commercial property developer?

BLD02-ORG03-REP01: Once again, the same as before, BLD02-ORG02.

BLD02-ORG03-INT01: Who was the construction cost consultant?

BLD02-ORG03-REP01: BLD02-ORG04, the same as before.

BLD02-ORG03-INT01: Who was the structural engineering design consultant?

BLD02-ORG03-REP01: BLD02-ORG05.

BLD02-ORG03-INT01: The inter-organizational relationships diagrams for the new-build design and new-build construction sub-processes are interesting [see Figure 14.5 on page 322 and Figure 14.6 on page 323]. Could you explain why there was an end-user's legal consultant [BLD02-ORG06], a commercial property developer's legal consultant [BLD02-ORG07], an adjacent property developer [BLD02-ORG08] and an adjacent property developer's legal consultant [BLD02-ORG09]?

BLD02-ORG03-REP01: Well, the developer [BLD02-ORG02] was buying the land from a person [BLD02-ORG08-REP01] who was going to develop the adjoining land for his own purposes. They struck-up some deal, whereby during our contract [BLD02], we would construct the access road which would form the servicing facilities for both developments

to a suitably adoptable standard. Now, to an adoptable standard means the construction was in accordance with the local authority standards – you did not have to secure adoption, or the developer [commercial property developer] did not have to secure the adoption. However, because it was ultimately going to be BLD02-ORG01's building and site, they obviously had to get involved with the legalities regarding the access strip down the middle. So throughout the contract – prior to the contract and throughout the contract until the building, in its finished state, was sold on to BLD02-ORG01 – the access road was between the developer [BLD02-ORG02] and the adjoining owner [BLD02-ORG08], who sold the land to the developer [BLD02-ORG02]. Then after that period, when the building was sold to BLD02-ORG01, it became their responsibility for the legals – how the adoption would be procured and the rest of it. So there was this complicated little web going on all of the time. The developer's solicitor [BLD02-ORG07] attended the majority of the early design team meetings.

BLD02-ORG03-INT01: What type of construction contract was used?

BLD02-ORG03-REP01: It was pure JCT 80, traditional form.

BLD02-ORG03-INT01: What tendering procedure was used?

BLD02-ORG03-REP01: It went out to open tendering.

BLD02-ORG03-INT01: Who was the primary construction contractor?

BLD02-ORG03-REP01: Initially, it was the same construction contractor as before [BLD02-ORG10].

BLD02-ORG03-INT01: Did the primary construction contractor [BLD02-ORG10] go into liquidation?

BLD02-ORG03-REP01: That's correct, yes. BLD02-ORG11 took over from BLD02-ORG10 when they went into liquidation.

BLD02-ORG03-INT01: During the fit-out design and fit-out construction sub-processes, were the construction cost consultant [BLD02-ORG12] and the building services engineering design consultant [BLD02-ORG12] in-house to the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: Yes, that is correct.

BLD02-ORG03-INT01: During the fit-out design and fit-out construction sub-processes, did the structural engineering design consultant [BLD02-ORG05] form part of the design team?

BLD02-ORG03-REP01: No, not for the fit-out? I think we showed the structural engineer [BLD02-ORG05] in a kind of a light capacity on the other one [BLD01]. Basically, it was the same guy [BLD02-ORG05-REP01]. BLD02-ORG05 was called upon if anything appeared to be structural.

BLD02-ORG03-INT01: It is very unusual to have two very similar building projects with completely different procurement and contractual arrangements occurring so close together. To what extent did you find this intriguing?

BLD02-ORG03-REP01: Well, that's right, yeah, especially the procurement. I think the developer [BLD01-ORG02] found it more interesting than us, 'cos when his tenders came back, he nearly had kittens.

BLD02-ORG03-INT01: Are you happy for me to start the interview?

BLD02-ORG03-REP01: Yes, of course.

BLD02-ORG03-INT01: Who was the client organization?

BLD02-ORG03-REP01: Well, as far as BLD02-ORG03 was concerned, on the new-build contract it was the developer [BLD02-ORG02], and on the fit-out contract it was BLD02-ORG01. Like I said before, ultimately, the end-user was the same person, BLD02-ORG01, but we were working through different people.

BLD02-ORG03-INT01: Why did the commercial property developer [BLD02-ORG02] decide to commission the building project?

BLD02-ORG03-REP01: The two sites became available to the developer [BLD02-ORG02], or became known to the developer [BLD02-ORG02], at very similar times – both BLD01 and BLD02. They were of a similar size. One was slightly bigger than the other one. They were rife for the same type of development and size of store. So between the developer [BLD02-ORG02] and the end-user [BLD02-ORG01], we worked out that they would provide exactly the same building shell. Obviously, the site infrastructure would be different on the two sites. It took a little bit longer to sort out the legal situation for BLD02 than it did for BLD01. But, primarily, that was the interest, you know: you could develop two sites exactly the same, with, sort of, linked planning authorities and such like. And that's about it.

You've got exactly the same shaped building and everything, but on two different sites.

BLD02-ORG03-INT01: During the last interview I asked you some questions about BLD02-ORG03's previous experience of working with the commercial property developer [BLD02-ORG02]. Do you know how many times BLD02-ORG03 had worked for the individual partners that formed BLD02-ORG02?

BLD02-ORG03-REP01: No, I don't. Just that the chairman of BLD02-ORG03 knows two of the individual members of the development company [BLD02-ORG02], if you like.

BLD02-ORG03-INT01: How did your organization become involved with the commercial property developer [BLD02-ORG02] during the building project?

BLD02-ORG03-REP01: Well, we had just done BLD01 – the same building! Even when we were actually preparing the working drawings for BLD01, we were fully aware that the fee was based around the fact that we were preparing drawings for two buildings, which were the same, although they were procured differently.

BLD02-ORG03-INT01: Why, after successfully procuring the first building project [BLD01] through design and build, did the commercial property developer [BLD02-ORG02] decide to change the method of procurement?

BLD02-ORG03-REP01: It was the advice of the design team. It was lead, primarily, by the quantity surveyor [BLD02-ORG04]. Obviously, we prefer JCT 80, because we can drive the specification more. So, from our point-of-view, that was an advantage. We were quite keen for that to happen. And the quantity surveyor [BLD02-ORG04] told the developer [BLD02-ORG02] that he would get a cheaper building at the end. Even though the two don't necessarily go together. But as it happened, he didn't.

BLD02-ORG03-INT01: Given the commercial property developer [BLD02-ORG02] was a collectivity of three people, each with their own previous experience of the building process, how many partners of the commercial property developer [BLD02-ORG02] did you liaise with during the course of completing the building project?

BLD02-ORG03-REP01: Two. No, it was all three, actually.

BLD02-ORG03-INT01: Did this practice cause you any difficulties?

BLD02-ORG03-REP01: No. We were given . . . for the pre-contract, our point of contact was one individual, really. We had to liaise through one individual. Then, post-contract, that individual changed, in fact. But, nevertheless, we still had one man – one individual to liaise with. So, it was two. He would then sometimes go away and make committee decisions.

BLD02-ORG03-INT01: Did the commercial property developer [BLD02-ORG02] follow this protocol during BLD01?

BLD02-ORG03-REP01: Yes.

BLD02-ORG03-INT01: How would you describe the roles and responsibilities undertaken by your organization during BLD02?

BLD02-ORG03-REP01: It was the . . . it was the same role as BLD01. Basically, pre-contract, yeah? But, obviously, between tender stage and post-contract, then we had to fulfil, you know – even on the new-build as well as the fit-out – all of the main procedures of the RIBA Plan of Works Schedule. It was across the board again.

BLD02-ORG03-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD02-ORG03-REP01: Highly instrumental! It was the development of the scheme design, bearing in mind that the building unit was already determined. The development of the scheme design in terms of the site infrastructure, and everything else from stage D, I would suggest, through to completion.

BLD02-ORG03-INT01: How would you describe the building project?

BLD02-ORG03-REP01: Retail development with associated services, facilities and car parking.

BLD02-ORG03-INT01: What was the location of the building project?

BLD02-ORG03-REP01: A medium-sized town in \*\*\*\* \*.

BLD02-ORG03-INT01: Were there any unusual or unforeseen site difficulties?

BLD02-ORG03-REP01: Yes, there was. There was a mineshaft right outside the front entrance which had to be grouted. However, we were aware that this existed from a very early stage. There was also a degree of soil contamination on the site, arsenic, in fact, but it was discovered later that it was in the topsoil, which had actually been placed on the site. The actual bearing strata itself – the actual strata beneath

this artificial mound, if you like – was actually not a problem.

BLD02-ORG03-INT01: Was the start date of the building project delayed as a result of this contamination or for any other factor?

BLD02-ORG03-REP01: No. It was thought at one stage that it might be a costly exercise, but as it turned out, it wasn't.

BLD02-ORG03-INT01: What was the commercial property developer's [BLD02-ORG02] original budget for the building project at the briefing stage?

BLD02-ORG03-REP01: Well, I do know, but I am not supposed to! It was about half a million pounds. In fact, if you go back to what I said the last time, I think I said about £550,000, or something like that, for the new-build. And, basically, what they had done was put the same figures in from BLD01 in to BLD02.

BLD02-ORG03-INT01: What was the cost estimate of the building project after the scheme design stage?

BLD02-ORG03-REP01: The cost estimate had not changed after the scheme design stage.

BLD02-ORG03-INT01: What was the cost estimate of the building project prior to the tendering stage?

BLD02-ORG03-REP01: Just prior to the tendering stage, the quantity surveyor [BLD02-ORG04] was flagging-up that he thought that the project was probably going to come in higher than originally anticipated, for various reasons. Obviously, he prepared reports and submitted those to the developer [BLD02-ORG02]. Everybody was waiting with baited breath for the tenders to come back when we did eventually go out to tender.

BLD02-ORG03-INT01: To what extent did the construction cost consultant [BLD02-ORG04] anticipate there would be an increase in the tender prices?

BLD02-ORG03-REP01: I don't know. I don't think he ever pointed to how much it was going to be. All he said was that it was going to come back more expensive than originally anticipated.

BLD02-ORG03-INT01: What was the construction cost consultant's [BLD02-ORG04] reasoning behind this anticipated increase in the tender estimate?

BLD02-ORG03-REP01: I think we were all aware that with the original project [BLD01], being design and build, then the builder [primary construction contractor] tends to – despite reluctance from the architect [architectural design consultant] – down-grade the specification in order to keep within the figures given to the developer [commercial property developer]. After all, it's a fixed price, basically, with no major variations there. On BLD02 we had the opportunity to specify and quantify in the bills of quantity. In other words, the builders [primary construction contractors] were pricing exactly what we wanted at the end of the day, not what they were going to change. Obviously, some of the specification items had to be downgraded at BLD01 by the contractor [primary construction contractor]. Again, as I say, despite our reluctance, these downgraded items were still included. So the project was coming in just about right at BLD01. So, inevitably, it was going to be slightly higher, as we were producing the specification documents, which we fed through to the QS [BLD02-ORG04]. It looked like it was going to come in higher. Plus, there was different conditions in the ground there – a mineshaft to grout, you know, and contamination in the ground, until just before they went out to tender, in fact. The test reports did not come back until after that. So these things were all making it pretty obvious that it was going to come back a little higher than anticipated.

BLD02-ORG03-INT01: What was the accepted tender estimate?

BLD02-ORG03-REP01: Well, what happened was the tenderers came back, obviously, with their prices, and the tender figure was something like £250,000 over. It was a big sum of money – £200,000, or something like that. So, as a consequence, we took the lowest tender, which happened to be the same contractor [BLD02-ORG10] that did BLD01. And what they'd done was they'd produced priced bills in accordance with what was sent out. But then they had given a schedule of possible savings that they could make, because of their experience on the previous building, by downgrading the specifications, etc., etc. And, you know, obviously, those looked very favourable to the developer [BLD02-ORG02]. Questions were asked as to why it was costing as much as it was, and how come they could offer this. And at the end of the day, the developer [BLD02-ORG02] was quite happy to just accept things the way they were at BLD01. I mean, he's handing the building over to the end-user [BLD02-ORG01]. Once he's got his money, that's it – providing it doesn't fall to bits. So we



then negotiated with the cheapest tenderer, which was BLD02-ORG10 at the time.

BLD02-ORG03-INT01: What was the amount of the final account?

BLD02-ORG03-REP01: The final account was about £580,000.

BLD02-ORG03-INT01: Was that figure just for the new-build contract?

BLD02-ORG03-REP01: Well, what you have to take into account is that the building went out exactly the same as BLD01, but two or three months into the project it changed. They [BLD02-ORG02] decided that they wanted to extend it, but we will come to that in the minute. So the final account was actually the new-build contract, which was £580,000 or £600,000, something like that, plus the extension, which was another £100,000/£110,000 on top of that. But I can find out all of these figures exactly, if you want me to come back to you, as we did issue the certificates? So I think you could say that the final account was around the £600,000 mark, I think?

BLD02-ORG03-INT01: Yes, that would be very helpful. How long did it take to settle the final account?

BLD02-ORG03-REP01: Not very long.

BLD02-ORG03-INT01: What date did construction work start on site?

BLD02-ORG03-REP01: No, I can't remember. I think it was March 19## or March 19##. It was March 19##, sorry, but I'd have to check that.

BLD02-ORG03-INT01: What date was the completed building project handed over to the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: November of last year.

BLD02-ORG03-INT01: What was the original duration of the building project?

BLD02-ORG03-REP01: It was thirty-eight weeks, I think?

BLD02-ORG03-INT01: What was the actual duration of the building project? Was there any change?

BLD02-ORG03-REP01: Well, strangely enough there wasn't, but there should have been, because of the extension, and because the contractor [BLD02-ORG10] went into liquidation again, right at the start of the new-build contract. I mean, we'd got the steelwork and main frame up, and BLD02-ORG10 went

bust. So there was approximately a six-week delay while we sorted out the receivership issue and appointed BLD02-ORG11, whom I believe were the second lowest tenderer when we originally went out for the job. So we went to them and said: "Are you still interested?" So they agreed to do the project for the same price, plus whatever it cost for the extension and within the same timescale, which was a phenomenal task! So we'd knocked six weeks off the original programme, effectively, we'd increased it by 2000 square feet, and they still said they could do it!

BLD02-ORG03-INT01: Did BLD02-ORG11 also pick up BLD01?

BLD02-ORG03-REP01: No. BLD01 was at such a stage whereby all that was required was some small snagging items. So what we did there was to employ BLD02-ORG12 direct, who are just a small outfit, and they rectified the snagging items.

BLD02-ORG03-INT01: Was there any extension of time?

BLD02-ORG03-REP01: No, it was not necessary. Although they did get an extension of time, actually. They got an extension of time of two weeks.

BLD02-ORG03-INT01: Were any liquidated and ascertained damages imposed?

BLD02-ORG03-REP01: No.

BLD02-ORG03-INT01: What type of construction contract was used?

BLD02-ORG03-REP01: For the new-build contract it was the traditional form of procurement, and as such was JCT 80. For the fit-out contract it was IFC 84.

BLD02-ORG03-INT01: What tendering procedure was used?

BLD02-ORG03-REP01: They were both selective. It's interesting to think, you know, that each of the contractors [primary construction contractors] was supplied – there was, say, six on the list, I think – they were all supplied with the same sets of bills, but the two sets of bills had to be submitted separately to different organizations. Quite clearly the advantages are to take on a contractor [primary construction contractor] who will complete the new-build contract and the fit-out contract, in order that he can cross-phase the works. So you don't get the scenario where you're saying: "Right, well there's the new-build phase, and you know the defects liability period starts on that, and then fit-out comes in." But the problem was that on this they'd

different prices for different contracts. And, in fact, BLD02-ORG10, who was the cheapest for the new-build contract, was not the cheapest for the fit-out contract.

BLD02-ORG03-INT01: So did you have to liaise with two different primary construction contractors?

BLD02-ORG03-REP01: Well, at the end of the day, we didn't, which just goes to show you how pointless the exercise was in putting the two sets of bills out. Because . . . well, I suppose you still get your competitive element . . . but at the end of the day, the logic was far greater to employ BLD02-ORG10 – who were second on the fit-out – for the new-build contract. There was some strike-off between the developer [BLD02-ORG02] and the end-user [BLD02-ORG01]. However, I am unsure of the exact details, but I think some money changed hands because of this differential. I can't remember how it worked, but I can remember something flying around at the time. One was paying the other to offset against costs, because the tenders had come in cheaper against the new-build contractor, BLD02-ORG10. A right rigmarole!

BLD02-ORG03-INT01: Did you find this difficult to accept and understand?

BLD02-ORG03-REP01: Yes, well, I couldn't understand what was going on. I can't even explain it! But what I was saying was . . . I think the developer [BLD02-ORG02] managed to extract some money from the end-user [BLD02-ORG01] to pay for the difference.

BLD02-ORG03-INT01: Who was the contract administrator during the new-build contract?

BLD02-ORG03-REP01: Myself.

BLD02-ORG03-INT01: Did the commercial property developer [BLD02-ORG02] or your organization select the construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: This was a similar relationship as the previous project [BLD01]. The developer [BLD02-ORG02] selected the QS [BLD02-ORG04], as they'd previous experience of working with them.

BLD02-ORG03-INT01: How much previous experience of working with the construction cost consultant [BLD02-ORG04] did the commercial property developer [BLD02-ORG02] possess?

BLD02-ORG03-REP01: I don't know how many times, but he'd had more experience than we had of working with that quantity surveyor [BLD02-ORG04].

BLD02-ORG03-INT01: How much previous experience of working with the construction cost consultant [BLD02-ORG04] did your organization possess?

BLD02-ORG03-REP01: Just once before, on the last project [BLD01].

BLD02-ORG03-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD02-ORG04-REP01] did you possess?

BLD02-ORG03-REP01: Similarly, just once before.

BLD02-ORG03-INT01: Who was the contract administrator during the fit-out contract?

BLD02-ORG03-REP01: Myself.

BLD02-ORG03-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD02-ORG03-REP01: Again, the same as BLD01 on the M & E side. I think we talked about things like specialist glazing systems, where we vetted their drawings. You know, not really a design clause, as such – in the specification – only on the M & E side – in the shop-fitting side, for refrigeration cabinets, etc. We talked last time about the steelwork – I mean, that was subcontractor design. In other words, BLD02-ORG05 produced one-line drawings – loadings and such like – and then the fabricator [secondary construction contractor] takes it from there. But, there again, they're submit to the consultant [structural engineering design consultant] for checking purposes, all the calculations and everything. So whether you can actually say they were specifically responsible for the design is unclear.

BLD02-ORG03-INT01: Did the commercial property developer [BLD02-ORG02] specify any of the design team members?

BLD02-ORG03-REP01: Well, the developer [BLD02-ORG02] had specified the quantity surveyor [BLD02-ORG04], as I mentioned earlier, as they had a previous working relationship. But with the structural engineer [BLD02-ORG05], it was just a relationship that continued. This was the same for us.

BLD02-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD02-ORG05] did your organization possess?

BLD02-ORG03-REP01: Lots.

BLD02-ORG03-INT01: How much previous experience of working with the representative of the structural engineering design consultant [BLD02-ORG05-REP01] did you possess?

BLD02-ORG03-REP01: Just the last job [BLD01].

BLD02-ORG03-INT01: To what extent did the commercial property developer's legal consultant [BLD02-ORG07] influence the design process? Did he present any difficulties?

BLD02-ORG03-REP01: No, not really. You just had to be damned accurate with your minutes! If that's a complication?

BLD02-ORG03-INT01: How much previous experience of working with the commercial property developer's legal consultant [BLD02-ORG07] did your organization possess?

BLD02-ORG03-REP01: I think BLD02-ORG03, as an organization, had worked with them before. It was BLD02-ORG07. But not me, no.

BLD02-ORG03-INT01: During the fit-out design sub-process, were the building services engineering design consultant [BLD02-ORG12] and the construction cost consultant [BLD02-ORG12] in-house to the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: Yes, that is correct. They were the same as in the previous project [BLD01].

BLD02-ORG03-INT01: Were the representatives for the end-user's in-house building services engineering design consultant [BLD02-ORG12-REP02] and the end-user's in-house construction cost consultant [BLD02-ORG12-REP01] the same people that you worked with during BLD01?

BLD02-ORG03-REP01: Yes, apart from the QS [BLD02-ORG12-REP01]. He was a different individual.

BLD02-ORG03-INT01: So, just to recap: you had previously worked with the representative of the end-user's in-house building services engineering design consultant [BLD02-ORG12-REP02] during BLD01, but during BLD02 it was the first time that you had worked with the representative of the end-user's

in-house construction cost consultant [BLD02-ORG12-REP01]?

BLD02-ORG03-REP01: Yes, that is correct.

BLD02-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD02-ORG10] did the commercial property developer [BLD02-ORG02] possess?

BLD02-ORG03-REP01: I believe I mentioned the full details to you during our last meeting. So, yes, the developer [BLD02-ORG02] did possess previous experience of working with BLD02-ORG10.

BLD02-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD02-ORG10] did your organization possess?

BLD02-ORG03-REP01: Well, with BLD02-ORG11, yes – a number of times. Although, I don't know how many. And with BLD02-ORG10, just during the previous project [BLD01].

BLD02-ORG03-INT01: How much previous experience of working with BLD02-ORG11 did you possess?

BLD02-ORG03-REP01: None.

BLD02-ORG03-INT01: How much previous experience of working with the representative of BLD02-ORG11 [BLD02-ORG11-REP01] did you possess?

BLD02-ORG03-REP01: None.

BLD02-ORG03-INT01: During the new-build construction sub-process, to what extent did the commercial property developer's legal consultant [BLD02-ORG07] contribute to any difficulties?

BLD02-ORG03-REP01: Yes, there were complications arising over the exact size and shape of the road, and how much we had to do to meet this requirement, which was constructed to an adoptable standard. The definition was too open. There were certain things which the adjoining owner's solicitor [BLD02-ORG09] and the developer's solicitor [BLD02-ORG07] were arguing about. The local authority said that they would not be prepared to adopt the road until it met a certain layout. Now this layout was just a tag-on with a hammerhead at the end, basically, which was never costed for and never part of the provisionals, or it had never seemed to be part of the provisionals. The local authority just threw this in at the end of the day. So this big legal

argument started to develop, and the adjoining owner [BLD02-ORG08] – the guy who they'd [BLD02-ORG02] bought the land off – was developing his site at the same time. What was perhaps ideal for BLD02-ORG01 was not ideal for him [BLD02-ORG08], and it started to get really pretty cloudy, you know. And we were piggy-in-the-middle.

BLD02-ORG03-INT01: Could I just confirm with you that during the new-build construction sub-process the primary construction contractor was initially BLD02-ORG10, but BLD02-ORG11 took over from BLD02-ORG10 when they went into liquidation?

BLD02-ORG03-REP01: Yes, that is correct.

BLD02-ORG03-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all during the new-build design sub-process, how would you rank the reputation of the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: 3.

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: 4.

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: During the fit-out design sub-process, how would you rank the reputation of the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: During the new-build construction sub-process, how would you rank the reputation of the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: 3.

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: 4.

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: 4.

BLD02-ORG03-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG03-REP01: 4.

BLD02-ORG03-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG03-REP01: 4.

BLD02-ORG03-INT01: During the fit-out construction sub-process, how would you rank the reputation of the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: 5. Just as a matter of interest, are we talking about their integrity?

BLD02-ORG03-INT01: Yes, professional integrity and professional reputation.



BLD02-ORG03-REP01: Can I clarify something?

BLD02-ORG03-INT01: Yes.

BLD02-ORG03-REP01: Throughout what we've discussed for BLD01 and BLD02, in terms of the end-user organization, BLD02-ORG01 is very reputable, yeah. The individual [BLD02-ORG01-REP01], right, who was actually appointed as their representative – their project manager, if you like, or their in-house project manager, as they do have a field project manager as well – their in-house project manager was not as professional as you would normally expect a person in that position to be. He was a bit, sort of, scatter-brained, you know? But, you know, integrity-wise, he was absolutely A1. I mean, if he gave you a decision, or if he told you verbally, then there was no question that he would turn it round and throw it in your face. There was just no question of that at all. But from his professional standpoint, you would have to say he was *quite reputable*, as sometimes he would not quite convey correctly, or whatever, or he'd forget. Now that sometimes caused problems. He would change his mind over night. But, nevertheless, he kind of accepted the fact, because if you said to him that he had not told you that before, he would accept the fact! He knew what he was like – that he had not told you that before. He'd just say: "Oh. Oh dear. Is that going to cost some money?" And I would say: "Well, yeah." He would then say: "Alright then!"

BLD02-ORG03-INT01: To what extent did you find this a difficulty?

BLD02-ORG03-REP01: Yes, it was difficult. Sometimes it was a problem to satisfy him as a client, without saying: "For God's sake, what are you trying to do?" To, sort of, put politely that this was going to cause problems or whatever. That was sometimes a bit difficult. But the organization [BLD02-ORG01], *very reputable*, you know? But the guy [BLD02-ORG01-REP01] who was appointed to represent them had some flaws.

BLD02-ORG03-INT01: During the fit-out construction sub-process, how would you rank the reputation of the end-user's in-house building services engineering design consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: 5.

BLD02-ORG03-INT01: The primary construction contractor [BLD02-ORG11]?

BLD02-ORG03-REP01: 4.

BLD02-ORG03-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? During the new-build design sub-process, how often did your organization provide information to the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: *Several times monthly*, I would say.

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: During the new-build construction sub-process, how often did your organization provide information to the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG03-REP01: *Several times daily.*

BLD02-ORG03-INT01: To what extent did the frequency of the information that your organization provided to the different primary construction contractors [BLD02-ORG10 and BLD02-ORG11] change?

BLD02-ORG03-REP01: Yes, I suppose there was a difference. You could say *several times weekly* for BLD02-ORG10. But, there again, they did have experience of the project. And BLD02-ORG11 had a monumental task to fulfil, really. At the beginning of the project, when they took it over, I would say *several times daily*. After the first four or five weeks it would be *several times weekly*. So you can imagine the phasing-out as they are trying to get familiar with what has been built – what the status was. And we, as contract administrators, were the only one who had that knowledge.

BLD02-ORG03-INT01: During the fit-out design sub-process, how often did your organization provide information to the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Several times monthly.*

BLD02-ORG03-INT01: During the fit-out construction sub-process, how often did your organization provide information to the end-user [BLD01-ORG01]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Several times weekly.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Several times monthly.*

BLD02-ORG03-INT01: The primary construction contractor [BLD02-ORG11]?

BLD02-ORG03-REP01: The same. No, it would be *several times weekly*. Because, by that time, they had a good understanding of the job, effectively. But what tends to happen is you will provide information *several times weekly*, but it might also be *several times daily*. If you get my drift? You know, you could find that all day you're never off the phone on a Tuesday, and then there is nothing for two or three days whilst they settle in with what you've given them.

BLD02-ORG03-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? During the new-build design sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: It was *quite often*.

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: I think I explained this to you the last time. I would have to say, *quite often*.

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: During the new-build construction sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: Well, it was *rarely*. It was one incident. So, therefore, it was *rare*. But at the same time you could categorize that by saying: "It was a big hassle!" It might only happen once, but it was a real pain.

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The primary construction contractors [BLD02-ORG10 and BLD02-ORG11]?

BLD02-ORG03-REP01: BLD02-ORG10, *rarely*, and BLD02-ORG11, *rarely*, again. I don't know whether or not that's something to do with my personality?

BLD02-ORG03-INT01: During the fit-out design sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: During the fit-out construction sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG12]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The primary construction contractor [BLD02-ORG11]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual relationship and your organization's relationship with each of the following organizations?

BLD02-ORG03-REP01: Can we just get an analogy of what would be a conflict in terms of responsibilities or priorities? Could I offer a suggestion, and therefore you can tell me whether it is the same as what you're actually asking?

BLD02-ORG03-INT01: Yes, if you would like to?

BLD02-ORG03-REP01: I would say that was . . . the quantity surveyor [construction cost consultant] has a position, for example, the architect [architectural design consultant] has a position – a role and a responsibility within the structure, the quantity surveyor [construction cost consultant] then tries to over-ride the architect's [architectural design

consultant] decision by going to, say, the developer [commercial property developer].

BLD02-ORG03-INT01: Yes, that is correct.

BLD02-ORG03-REP01: We can sort of summarize this by taking the analogy further. Myself, when talking to the quantity surveyor [construction cost consultant] about an issue from the BLD02-ORG01's point-of-view, would often find BLD02-ORG04-REP01 replying: "You're the architect." BLD02-ORG04-REP01, on the other hand, would say: "I think I will have a word with X about this." So that's the distinguishing differential between the two. Because he had a much closer relationship, as we have demonstrated in the past, with the developer [BLD02-ORG02], he thought that something could be done more cheaply than we had specified. Then there was, it was rare, but there was the odd time when he did attempt to infringe upon my responsibilities. And the priorities side of it is that I am trying to design for the future and design the best, or want the best. The quantity surveyor [construction cost consultant] does not necessarily have the same priority. However, I think, perhaps, you ought to split those.

BLD02-ORG03-INT01: So you think there should be a distinction made between conflicting priorities and conflicting responsibilities?

BLD02-ORG03-REP01: Yes. My responsibilities might not necessarily be the same as my priorities, because different responsibilities can be prioritized – graded if you like! Does that make sense?

BLD02-ORG03-INT01: Yes, it does. However, I think it is very much a personal phenomenon – intra-personal conflict, or conflict arising from within yourself. When you prioritize your work schedule, your contemporary within an interdependent organization may not prioritize in exactly the same way. You may also experience a conflict of interest as a consequence of your organizational culture, status, position and subsequent responsibilities to your client. These factors and levels of conflict can eventually lead to certain disagreements or disputes.

BLD02-ORG03-REP01: Yes, that's fine.

BLD02-ORG03-INT01: During the new-build design sub-process, how would you rate the extent to which disagreements or disputes characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Never, really.*

BLD02-ORG03-INT01: During the new-build construction sub-process, how would you rate the extent to which disagreements or disputes characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The commercial property developer's legal consultant [BLD02-ORG07]?

BLD02-ORG03-REP01: *Rarely.* With the developer's solicitor [BLD02-ORG07] we didn't really have any disputes or disagreements. The difficulty was clarifying what the way to go was, if you like. I think once we'd determined that, everybody was quite happy. It burnt-up an awful lot of time discussing what was the way to go.

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG03-REP01: *Rarely.*

BLD02-ORG03-INT01: The primary construction contractors [BLD02-ORG10 and BLD02-ORG11]?

BLD02-ORG03-REP01: BLD02-ORG10, *rarely*, and BLD02-ORG11, as it turned out, was really, *never*.

BLD02-ORG03-INT01: During the fit-out design sub-process, how would you rate the extent to which disagreements or disputes



characterized your relationship with the end-user [BLD02-ORG01]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD02-ORG012]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG012]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG005]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: During the fit-out construction sub-process, how would you rate the extent to which disagreements or disputes characterized your relationship with the end-user [BLD02-ORG001]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house building services engineering design consultant [BLD02-ORG012]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The end-user's in-house construction cost consultant [BLD02-ORG012]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The structural engineering design consultant [BLD02-ORG005]?

BLD02-ORG03-REP01: *Never.*

BLD02-ORG03-INT01: The primary construction contractor [BLD02-ORG011]?

BLD02-ORG03-REP01: BLD02-ORG010, *rarely*. Well, in fact, BLD02-ORG010 didn't really do any of the fit-out – so they can't really qualify. You can't really include them, if you like. It was just BLD02-ORG011. The project had moved to a point where just the steel frame was up when they [BLD02-ORG010] went into liquidation. So fit-out-wise, they

[BLD02-ORG10] didn't do anything, and therefore with BLD02-ORG11, the answer would be *never*. There was a real team drive to get the damn thing sorted.

BLD02-ORG03-INT01: Why do you think that was the case?

BLD02-ORG03-REP01: Because there was more team spirit and co-operation. Everybody was willing to work together to get it sorted out and finished. On both of these projects [BLD01 and BLD02] there was no . . . in fact, in all projects I am involved in, I try to engender the spirit where there is no claims consciousness, and be as fair and as reasonable as absolutely possible. The contract allows a mechanism for sorting out variations to the works, and if the contractor [primary construction contractor] has a case for payment for variations, then you are to respect the fact. It doesn't matter if the architect [architectural design consultant] has dropped a bollock! The fact is, if you respond and say: "Well, fair enough. We had to instigate this variation because we were in receipt of late information", or whatever – if at the end of the day you play fair – then I think the contract runs that much more smoothly. I don't think on a contract which had had its duration as squashed as much as this one, and then the additional work added on top of that, without any other outlook it would have been a disaster. But at the end of the day the developer [commercial property developer] is walking away happy; the end-user is happy – in fact, the end-user is delighted – and all got it within their own costs. The contractor [primary construction contractor] – I don't know? But I think he might be happy? I think he may have even made a little profit on it. And we're happy, because everybody else is happy, basically. I think both of the projects [BLD01 and BLD02], in fact, all of the retail projects that I have done are fast track and hard work projects, and they've all been successful. I have only been involved in one which wasn't, and that was something which I was asked to take over at the end of the day. It had already gone somewhat astray. I am not trying to blow-my-own-trumpet. I think you've got to engender team spirit. As I say, the contract is there as a mechanism. It's not to throw at people. There are clauses in the contract which empower you to be able to do certain things, and you can use those to your advantage, if you wish. But I don't think that's the right way to go about it at all. I know there are a lot of architects [architectural design consultants] who do feel that way, though. Just one other thing. Again, going back to disagreements or disputes, I think, again, you are probably distorting the feedback – only to a small degree – because you can sometimes disagree with something, but

it doesn't develop into a dispute. If the client says: "I want this." And you say: "Well, I don't think that's right. I think you should be doing this." And he says: "Well, no. I want that." You simply say, well, if the situation develops: "I told you so." You know? But it doesn't develop into a dispute. So there are things, for example, the client, again very rarely, I mean, I said *never* before. Very rarely would it happen, but he would tell you he wanted something done and I would then put the phone down, hang my head down and say: "Oh God! What a guy!" But it doesn't develop into a dispute, you know, we would just get on with it. After all, he's the guy paying the money at the end of the day, even though you may not have agreed with what he has just said.

BLD02-ORG03-INT01: What professional services did BLD02-ORG03 provide during the building project?

BLD02-ORG03-REP01: Architectural design – from inception through to completion – project planning, contract administration, and landscape design.

BLD02-ORG03-INT01: What is the full range of professional service that BLD02-ORG03 could provide to a potential client?

BLD02-ORG03-REP01: We are development consultants and planning consultants, and we also provide architectural design, landscape design and contract administration services.

BLD02-ORG03-INT01: What is the full range of industrial sectors to which BLD02-ORG03 could provide a professional service to a potential client?

BLD02-ORG03-REP01: Commercial, retail, office, housing, industrial, transport, defence – we are on the Ministry of Defence list – and finance – banks, building societies, etc.

## 21.2 INTERVIEW TRANSCRIPT BLD02-TRAN02

Organization Role: Construction Cost Consultant

Organization Code: BLD02-ORG04

Respondent Role: Boundary Representative for BLD02-ORG04

Respondent Code: BLD02-ORG04-REP01

Interviewer Code: BLD02-ORG04-INT01

BLD02-ORG04-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project [BLD02]?

BLD02-ORG04-REP01: Well, it was a traditional role. We were the quantity surveyor/cost consultant [construction cost consultant].

BLD02-ORG04-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project [BLD02]?

BLD02-ORG04-REP01: I was the point of contact, the project manager, if you like, for all of the quantity surveying/cost control work [construction cost consultant].

BLD02-ORG04-INT01: Were there any unusual or unforeseen site difficulties?

BLD02-ORG04-REP01: Yes. Well, apart from the contractor [BLD02-ORG10] going into liquidation halfway through. The main site condition? The problem was the question of main drainage and surface drainage for the site. Other problems? The relationship with the owner of the adjoining site, who had originally owned the site that we built on.

BLD02-ORG04-INT01: What date did construction work start on site?

BLD02-ORG04-REP01: I think it was January 19##, because it followed on very closely after the completion of BLD01. Again, it was a six-month contract, so you are talking about a completion of about September/October 19##.

BLD02-ORG04-INT01: Was there any extension of time?

BLD02-ORG04-REP01: Yes, a couple of weeks, as I remember it, or three weeks. Basically, due to the liquidation of BLD02-ORG10. That was about the only extension of time that was awarded.

BLD02-ORG04-INT01: What type of construction contract was used?

BLD02-ORG04-REP01: It was a traditional JCT 80 contract.

BLD02-ORG04-INT01: What tendering procedure was used?

BLD02-ORG04-REP01: It was a straight negotiation, because of the experience on BLD01.

BLD02-ORG04-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD02-ORG02]?

BLD02-ORG04-REP01: Probably the same, *very reputable*. Number 5.

BLD02-ORG04-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG04-REP01: Probably 4, I would think.

BLD02-ORG04-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG04-REP01: Again, probably 4.

BLD02-ORG04-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG04-REP01: Probably 3, in this case.

BLD02-ORG04-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG04-REP01: Probably, 4.

BLD02-ORG04-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations. First of all during the new-build design sub-process, how often did your organization provide information to the commercial property developer [BLD02-ORG02]?

BLD02-ORG04-REP01: Probably the same. Probably 6 or 7.

BLD02-ORG04-INT01: Which of these two responses do you think best describes the extent to which your organization provided information to the commercial property developer [BLD02-ORG02]?

BLD02-ORG04-REP01: Probably 6, I would have thought.

BLD02-ORG04-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG04-REP01: Probably 5, I would have thought.

BLD02-ORG04-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG04-REP01: Probably 4.

BLD02-ORG04-INT01: During the new-build construction sub-process, how often did your organization provide information to the commercial property developer [BLD02-ORG02]?

BLD02-ORG04-REP01: Probably 4, I would have thought.

BLD02-ORG04-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG04-REP01: Again, probably 4.

BLD02-ORG04-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG04-REP01: Maybe 2.

BLD02-ORG04-INT01: The original primary construction contractor [BLD02-ORG10]

BLD02-ORG04-REP01: I think probably 5.

BLD02-ORG04-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG04-REP01: Probably the same as BLD02-ORG10, 5.

BLD02-ORG04-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations. First of all during the new-build design sub-process, rate the extent to which conflict responsibilities or priorities characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG04-REP01: Probably 2.

BLD02-ORG04-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG04-REP01: Probably 2 again, I would say.

- BLD02-ORG04-INT01: The structural engineering design consultant [BLD02-ORG05]?
- BLD02-ORG04-REP01: Probably 1.
- BLD02-ORG04-INT01: During the new-build construction sub-process, rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD02-ORG02]?
- BLD02-ORG04-REP01: Again, probably 2, I would have thought.
- BLD02-ORG04-INT01: The architectural design consultant [BLD02-ORG03]?
- BLD02-ORG04-REP01: Probably 2, again.
- BLD02-ORG04-INT01: The structural engineering design consultant [BLD02-ORG05]?
- BLD02-ORG04-REP01: Probably 1.
- BLD02-ORG04-INT01: The original primary construction contractor [BLD02-ORG10]?
- BLD02-ORG04-REP01: Probably 3.
- BLD02-ORG04-INT01: The replacement primary construction contractor [BLD02-ORG11]?
- BLD02-ORG04-REP01: Again, probably 3, I would have thought.
- BLD02-ORG04-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all during the new-build design sub-process, rate the extent to which disagreements or disputes characterized your relationship with the commercial property developer [BLD02-ORG02]?
- BLD02-ORG04-REP01: It's very difficult to generalize, because clients are clients. Again, probably 2, I would have thought.
- BLD02-ORG04-INT01: The architectural design consultant [BLD02-ORG03]?
- BLD02-ORG04-REP01: Probably 3, actually.
- BLD02-ORG04-INT01: The structural engineering design consultant [BLD02-ORG05]?
- BLD02-ORG04-REP01: Probably 1.

BLD02-ORG04-INT01: During the new-build construction sub-process, rate the extent to which disagreements or disputes characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG04-REP01: *Rarely*. Probably 2.

BLD02-ORG04-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG04-REP01: Maybe 3.

BLD02-ORG04-INT01: The structural engineering design consultant [BLD02-ORG05]?

BLD02-ORG04-REP01: Maybe 2, actually.

BLD02-ORG04-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG04-REP01: Probably 3. No, maybe 4, even.

BLD02-ORG04-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG04-REP01: Maybe 4, again.

BLD02-ORG04-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD02-ORG04-REP01: Well, we're quantity surveyors, cost engineers – whatever that means – project managers, and we also offer building surveying services.

BLD02-ORG04-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD02-ORG04-REP01: We do everything but, probably, we are more allied to commercial development.

BLD02-ORG04-INT01: How many offices does your organization possess?

BLD02-ORG04-REP01: Just the one in this city.

BLD02-ORG04-INT01: What national or international geographical locations would your organization provide a service to a potential client?

BLD02-ORG04-REP01: We cover the whole of the UK.



BLD02-ORG04-INT01: What year was your organization established?

BLD02-ORG04-REP01: 19##.

BLD02-ORG04-INT01: How many people are employed by your organization?

BLD02-ORG04-REP01: There are three surveyors, a secretary, and myself.

BLD02-ORG04-INT01: How would you define the corporate philosophy of your organization?

BLD02-ORG04-REP01: We provide a personal service to our clients. A personal service, obviously, from the financial aspect. But it is a very personal service that we do provide to our clients.

BLD02-ORG04-INT01: How did your organization become initially involved with the commercial property developer [BLD02-ORG02] during these two projects [BLD01 and BLD02]?

BLD02-ORG04-REP01: On these projects [BLD01 and BLD02], I don't know. I've known the main managing director of the company [BLD02-ORG02] for a long time - ten or fifteen years? Well, he was with a different company and I was with different company.

## 21.3 INTERVIEW TRANSCRIPT BLD02-TRAN03

Organization Role: Structural Engineering Design Consultant

Organization Code: BLD02-ORG05

Respondent Role: Boundary Representative for BLD02-ORG05

Respondent Code: BLD02-ORG05-REP01

Interviewer Code: BLD02-ORG05-INT01

BLD02-ORG05-INT01: For the purposes of this research project I have separated BLD01 and BLD02 into four sub-processes: a new-building design sub-process; a new-build construction sub-process; a fit-out design sub-process, and a fit-out construction sub-process. The architectural design consultant [BLD02-ORG03] has informed me that your organization was involved during the fit-out sub-processes of the two building projects. Is this correct?

BLD02-ORG05-REP01: No, not on the fit-out, because we were only appointed as structural consultant [structural engineering design consultant] for the new-build scheme. The actual fit-out? We had nothing to do with it at all. Neither in terms of advising somebody who was fitting-out, nor looking at the fit-out works. Our involvement stopped, effectively, once the new-build phase of the project was completed. We saw no . . . or we had no responsibility, nor did we actually look at the fit-out. The fit-out is a cladding exercise, rather than a structural exercise. They [BLD02-ORG03] may be confusing BLD02 with other jobs. I mean, we are multi-disciplinary, so we have M & E services engineers [building services engineering design consultants] here who would be involved with fit-out, because, obviously, you'd be fitting lights and ducts and the like. So maybe he [BLD02-ORG03-REP01] was a bit confused. But I can confirm that we weren't involved with the fit-outs.

BLD02-ORG05-INT01: Who was the client organization?

BLD02-ORG05-REP01: BLD02-ORG02.

BLD02-ORG05-INT01: What type of organization was the client [BLD02-ORG02]?

BLD02-ORG05-REP01: A developer client [commercial property developer].

- BLD02-ORG05-INT01: Why did the commercial property developer [BLD02-ORG02] decide to commission the building project?
- BLD02-ORG05-REP01: I would imagine profit; in that he [BLD02-ORG02-REP01] had identified a site, which had . . . there were opportunities for retail developments in both of the medium-sized towns in \*\*\*\* \* that he had identified.
- BLD02-ORG05-INT01: How much previous experience of the building process did the commercial property developer [BLD02-ORG02] possess?
- BLD02-ORG05-REP01: I think he [BLD02-ORG02-REP01] was quite knowledgeable, because this particular client [BLD02-ORG02-REP01] used to be a retail site hunter for ORGANIZATION 2A [ORGANIZATION 1A] – who then became ORGANIZATION 2B [ORGANIZATION 1B]. He [BLD02-ORG02-REP01] used to be responsible for actually supervising building projects. So he [BLD02-ORG02-REP01] knew how buildings were put together. But he [BLD02-ORG02-REP01] also understood very well how sites were acquired and how the retail side of the industry worked. So he [BLD02-ORG02-REP01] was quite knowledgeable in terms of construction and disciplines – architects, engineers – confidence wise!
- BLD02-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD02-ORG02] did your organization possess?
- BLD02-ORG05-REP01: BLD01 was the first job that actually got to site. But we had known BLD02-ORG02 for, I guess, it must be five or six years. We used to do speculative work on the basis of no . . . if the job didn't come to fruition, we wouldn't get paid. If the job did come to fruition, we'd obviously be paid. And we'd done quite a bit of work that never, ever came off, so to speak. But this [BLD01] was the first major job that went through, and then it was very quickly followed by BLD02. But we must have known BLD02-ORG02-REP01 for about five or six years.
- BLD02-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD02-ORG02] did you possess?
- BLD02-ORG05-REP01: Yes, I did have previous experience of working with BLD02-ORG02. But on the basis that I've described: in terms of looking at schemes and putting structural information together; in terms of him putting an overall

package together. But this was the second one that went through, you know, from the feasibility stage through to the design stage, and then to the construction stage. We had done a lot of feasibility-type work which came to nothing.

BLD02-ORG05-INT01: How did your organization become involved with the commercial property developer [BLD02-ORG02] during the building project?

BLD02-ORG05-REP01: The relationship that we have with this particular developer [commercial property developer] is that he [BLD02-ORG02-REP01] uses us almost exclusively. Because he [BLD02-ORG02-REP01] appreciates that not all of his jobs will come to fruition, and hence he gives us the opportunity to keep coming back. So we knew nothing about the site, and he [BLD02-ORG02-REP01] basically said: "I've got a site, and I've got a potential tenant signed up." And we started the process off as normal, and this one obviously went right the way through, rather than stopping when the wheel fell off.

BLD02-ORG05-INT01: How did the architectural design consultant [BLD02-ORG03] become introduced to the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: I don't know. We didn't recommend them. The architect [BLD02-ORG03] would have been appointed in parallel. Now, my understanding of the way BLD02-ORG02 works is that he [BLD02-ORG02-REP01] would have more than one architect [architectural design consultant]. In essence, he's [BLD02-ORG02-REP01] got one or two engineers that he uses, too. In terms of architects [architectural design consultants], I think he [BLD02-ORG02-REP01] would go to a lot more architects [architectural design consultants] with potential schemes. I suspect it was . . . you know, he [BLD02-ORG02-REP01] just happened to choose BLD02-ORG03 on this occasion. Now BLD02-ORG03 might have been approached before, I don't know. But on the schemes that we've worked-up – we've come across a number of architects [architectural design consultants] – I don't think we'd come across BLD02-ORG03 with BLD02-ORG02 before. But BLD02-ORG03 were known to us. We certainly didn't introduce them. They were presented, effectively, as the team.

BLD02-ORG05-INT01: Why was the form of contract changed after BLD01 for BLD02?

BLD02-ORG05-REP01: Again, it's my recollection, but at that time, and I guess we're talking three or four years ago, the developer [BLD02-ORG02], and I think, certainly, some developers [commercial property developers] in particular like the idea of just a single point of contact – not because they think that design and build offers them the cheapest option to procure a building, but it means if there's something wrong with the design, then, you know – it's BLD02-ORG10, in this case – that he [commercial property developer] goes to. So he's [commercial property developer] got this single point of contact and he doesn't need to bother about agreements with the architect [architectural design consultant], with the QS [construction cost consultant], with the engineer [structural engineering design consultant], it's just down the line. Then BLD02-ORG10 can sort out with their subcontractors – one of which is us – assuming it's a structural design problem. But he's [commercial property developer] got this single point of contact. And I think that's what was attractive to him [commercial property developer]. I mean, in crude terms, he [commercial property developer] only has one bum to kick if something's not going right. Whereas, on a traditional contract, the client's got a contract with the contractor [primary construction contractor], a contract with the architect [architectural design consultant], a contract with the QS [construction cost consultant], a contract with the building services engineer [building services engineering design consultant] and so on. If there's a problem, the contractor [primary construction contractor] will say: "Well, it's not my fault. It's his fault." And, you know, the client's [commercial property developer] then looking around. On this one if there is a problem he [commercial property developer] doesn't need to bother whose problem it is, because it's the contractor's [primary construction contractor's]. So I think that was why it was chosen, because that was the way he [BLD02-ORG02] preferred to do it – just have one point of contact. The reason why it went traditional at the second job [BLD02] was because he [BLD02-ORG02] felt he could get a better tender. He [BLD02-ORG02] felt . . . I mean, with design and build, because, effectively, the risks . . . the contractor [primary construction contractor] has obviously got some design risks and other risks, his [primary construction contractor] price has got to be – I think it was a fixed-price project – that he [BLD02-ORG02] felt that he would actually get a better price by just going out to the market on an open basis. And given that the building had been designed once, he [BLD02-ORG02] was pretty sure that we knew what he wanted. And that's why he [BLD02-ORG02]

didn't go back to BLD02-ORG10 and ask them to give him a price, or negotiate a price. He [BLD02-ORG02] went back out. I mean, as it happened, BLD02-ORG10 also secured the job. But the belief was that he [BLD02-ORG02] would get a better overall price doing it that way, rather than negotiating the second phase with BLD02-ORG10 on the same basis. I don't know whether he [BLD02-ORG02] did or not, but that was why it went this route. Well, again, the other thing that you may not be aware of is that although BLD02-ORG02 were the client [commercial property developer] for the BLD02 site, there was another couple of people involved as part of BLD02-ORG02. Whereas BLD02-ORG02-REP01 [BLD01-ORG02-REP01] was the only client [commercial property developer] for BLD01 – acting as BLD02-ORG02, I don't remember which – but on the BLD02 site there were two other individuals who were also developers [commercial property developers], who, because of particular problems, and again it's my understanding, because of particular problems with the chap who owned the site, in that he wouldn't entertain BLD02-ORG02-REP01 singly. And this other . . . these other two people joined forces with BLD02-ORG02-REP01, and BLD02-ORG02-REP01 took a seat in the background while these two were the sort of . . . the sort of permissible face for the client [commercial property developer]. Oh, sorry, for the owner of the site who they did the deal with. There was a gentleman called [BLD02-ORG08-REP01] who had a DIY business on the site, and the agreement was for him to sell his site and give them vacant possession. He [BLD02-ORG08-REP01] was going to move over the other side of the road and build his replacement building. The access road which came in . . . as far as I remember . . . there were some drains in the road which wouldn't meet adoptable standards, and it became a pre-condition that the roads had to be built to adoptable standards. Albeit, I don't know whether they have eventually been adopted. But there was the usual sort of difficulties between the local authority, in terms of what they would adopt and what they wouldn't adopt. I mean, I can't remember exactly what was done at the end, albeit we did it, because we were doing the civil engineering work – the roads and drainage. But I am only responsible for the structural – in terms of our organization – I am responsible for the structural side, and my colleague BLD02-ORG05-REP02 is responsible for the civil engineering side. I mean, we eventually came up with a solution that met the technical requirements of the local authority. But it was a bit difficult. It wasn't a straightforward site [BLD02] – the second one – from the point-of-view of drainage.

BLD02-ORG05-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD02-ORG05-REP01: Broadly the same as the BLD01 building project – the pre-construction phase.

BLD02-ORG05-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD02-ORG05-REP01: Once again, the same as BLD01.

BLD02-ORG05-INT01: Were there any unusual or unforeseen site difficulties?

BLD02-ORG05-REP01: Again, you may or may not know this, but the medium-sized town where BLD02 is sited is well known for its ironstone workings, which are extensively worked in \*\*\*\*  
\*\*\*\*\*. BLD01 wasn't affected by them, but the BLD02 site had been under-mined. Ironstone workings are greatly different to coal workings – coal seams are obviously laid flat. Then, depending upon which way the earth's crust moved, but I mean, generally, there are usually plains of coal seams which are worked. The ironstone is, effectively, formed in large blobs, which might be, you know, of cathedral-like proportions, and it is mined wherever the veins occur. There was a shaft on our site right next to the main entrance, which was a 2 metre main shaft going down some, I think, 180 odd metres, which was to the lowest level of the workings. There were six levels of workings at BLD02, and they all had different numbers. We had to carry out deep borehole investigations, a) to satisfy ourselves that we had enough rock cover over the first level of workings, and b) there was also coal near the site and we didn't know whether it had been worked. So we had deep site investigations, which were boreholes 30 metres to 45 metres deep. They concluded that we had no problem from the point-of-view of coal work, but we had to grout-up the shaft in order to preserve its stability. But I think the furthest mine workings for the ironstone were about 200 metres down. In fact, our site hadn't been undermined, but the shaft was on our site in order to get across to a working off our site. If you ever hear of this medium-sized town, it's full of holes underneath!

BLD02-ORG05-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations. First of all, the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: Again, 4 – *reputable*.

BLD02-ORG05-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG05-REP01: *Reputable.*

BLD02-ORG05-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG05-REP01: *Reputable.*

BLD02-ORG05-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG05-REP01: *Reputable.* I mean, again, at the time of starting, not knowing what ultimately was to happen. *Reputable* as far as we were concerned.

BLD02-ORG05-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG05-REP01: *Reputable.*

BLD02-ORG05-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc. to each of the following organizations. First of all during the new-build design sub-process, how frequently did your organization provide information to the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: Probably *less than once monthly*.

BLD02-ORG05-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG05-REP01: During the development stage, probably *once monthly*. Sorry, I would say *several times monthly*. Because we had, effectively, designed the building once, literally, it was just a case of taking the drawings . . . altering the drawings and, effectively, just tinkering with them – on the structural side. Clearly, the civils side of things took a bit more involvement. But if you are looking purely at structural work, then it was different, because the building had literally been designed. And it truly was the same building. I mean, we have had jobs before where the client has told us he wants to build the same building and doesn't, you know, it's near, but not quite the same. I mean, this just literally was just a facsimile taken. It was handed and that was all. Which, because by that time we had drawings on AutoCAD, it was extremely easy to cope with. If they'd been manual drawings we would have had to re-draw them – a bit more lengthy! But, essentially, it



was just picked up, handed, and dropped down on our site.  
It was not bad!

BLD02-ORG05-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG05-REP01: Probably *less than once monthly*.

BLD02-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations. First of all during the new-build design sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: On this site, *never*, no conflicts with the client [BLD02-ORG02].

BLD02-ORG05-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG05-REP01: *None* on this.

BLD02-ORG05-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG05-REP01: *None*.

BLD02-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations. First of all during the new-build design sub-process, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: *Never*.

BLD02-ORG05-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG05-REP01: *Never*.

BLD02-ORG05-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG05-REP01: *Never*.

BLD02-ORG05-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following

organizations. During the new-build construction sub-process, how frequently did your organization provide information to the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: I mean, not very often. We didn't have very much communication, again, because it had effectively been done once before. I would have said *once monthly*.

BLD02-ORG05-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG05-REP01: *Several times monthly*.

BLD02-ORG05-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG05-REP01: Probably *less than once monthly*.

BLD02-ORG05-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG05-REP01: On average, *several times weekly*.

BLD02-ORG05-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG05-REP01: Again, on average, *several times weekly*.

BLD02-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations. During the new-build construction sub-process, how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: *Never*.

BLD02-ORG05-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG05-REP01: *Never*.

BLD02-ORG05-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG05-REP01: *Never*.

BLD02-ORG05-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG05-REP01: *Never*.

BLD02-ORG05-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG05-REP01: *Never.*

BLD02-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations. During the new-build construction sub-process, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with the commercial property developer [BLD02-ORG02]?

BLD02-ORG05-REP01: *Never.*

BLD02-ORG05-INT01: The construction cost consultant [BLD02-ORG04]?

BLD02-ORG05-REP01: *Never.*

BLD02-ORG05-INT01: The architectural design consultant [BLD02-ORG03]?

BLD02-ORG05-REP01: *Never.*

BLD02-ORG05-INT01: The original primary construction contractor [BLD02-ORG10]?

BLD02-ORG05-REP01: *Never.*

BLD02-ORG05-INT01: The replacement primary construction contractor [BLD02-ORG11]?

BLD02-ORG05-REP01: *Never.*

BLD02-ORG05-INT01: Do you think the knowledge and experience gained during the first building project [BLD01] helped to improve the effectiveness of the professional relationships during the second building project [BLD02]?

BLD02-ORG05-REP01: I think that was an inevitable consequence of it, because it literally was the same building and the same design team and the same construction team – at least initially – that there would be no reason for, sort of, disagreements. I mean, everybody knew what they were doing. So, I mean, I am sure it was bound to be a consequence. If it had been the same team, but a different building, you may not have necessarily got the never, never, never results! I think it's because it was the same . . . it literally was a facsimile – it was a copy of a building that had been built twenty-five miles further up the road – and almost, I mean, as I

recollect, I think there was not a great deal of gap between BLD01 – which was the first one being completed – and the BLD02 one being started. I mean, my recollection is that there might have been either a small overlap, or a small gap, but they were quite concurrent.

BLD02-ORG05-INT01: Do you think professional role uncertainty was reduced as a consequence of the concurrent nature of the second building project [BLD02]?

BLD02-ORG05-REP01: Yes, by definition. Yes, I mean, and it wasn't so much . . . I mean, perhaps not the responsibilities were better defined – by an external party – it was because the job and the drawings had been produced once already, and therefore the information existed. Whether or not there would have been disagreements if the jobs were different, I don't know. But if it was the same team, but we were now building a school, or a completely different building . . . it was the fact that, effectively, the production information for the building – its foundations and superstructure – was 90% complete, because it had already been done once before. I mean, it was only the site, car parking, external works and drainage which, obviously, had to be re-designed, particularly, because of the new site. But the actual building itself, effectively, is the same building.

## 22 APPENDIX M: BUILDING PROJECT 3 (BLD03) INTERVIEW TRANSCRIPTS

### 22.1 INTERVIEW TRANSCRIPT BLD03-TRAN01

Organization Role: Architectural Design Consultant

Organization Code: BLD03-ORG06

Respondent Role: Boundary Representative for BLD03-ORG06

Respondent Code: BLD03-ORG06-REP01

Interviewer Code: BLD03-ORG06-INT01

BLD03-ORG06-INT01: How would you describe the roles and responsibilities undertaken by the structural engineering design consultant [BLD03-ORG07] during the building project?

BLD03-ORG06-REP01: BLD03-ORG07 did a schematic structural layout. In other words, they said: “Yeah, we’ll do a steel framed building with precast concrete upper floor, timber trusses, and the structural grid will be 6-metre centres.” But they [BLD03-ORG07] didn’t actually work out that, say, the columns would be 350-square. They [BLD03-ORG07] just showed lines of structure and that the structure would sit on piles, which, you know, they did all of the ground tests for and so forth. And on that basis, BLD03-ORG05 went out to all and sundry to get the prices. So we actually started on site with a building regulation approval, but with no structural details, which had to then be submitted. What happened then was, given the loadings as set out, the steel fabricator [secondary construction contractor], which was a company in \*\*\*\*\*, I think, or was it \*\*\*\*\*? Anyway, they designed the system around the principles of BLD03-ORG07’s details. In other words, we knew there was going to be a column there and a column there – in the most economical way that they could. Now, that proved a difficult problem in the fact that they [secondary construction contractor] actually cut too many corners. It was the first time that I had ever come across the building regulations actually checking all of the calculations and finding that they didn’t actually meet with the various requirements. So they [secondary construction contractor] had to strengthen some of the internal columns. So there was a lot of toing and froing – checking of drawings – between BLD03-ORG07 and us, although the whole thing was being done by somebody else.

BLD03-ORG06-INT01: Do you think that was an effective structural engineering design procedure?

BLD03-ORG06-REP01: Well, I would have thought it would have been far easier to have paid BLD03-ORG07 a little bit more to get them to do all of the calculations and work out all of the steelwork sizes, as such. And we could have then detailed that. I mean, we were just allowing pockets. We didn't know how deep the overall floor slab would be, etc. We were just working all of the time to possible zones and then passing that around all of the subcontractors [secondary construction contractors]. And all of the subcontractors [secondary construction contractors] would then pass what they are pricing on. What they [secondary construction contractors] actually had to do was actually to spend – which must have been reflected in the price – to spend their own time sitting down and working it all out and coming out with a design.

BLD03-ORG06-INT01: Do you think that procedure increased the total cost of the building project?

BLD03-ORG06-REP01: Well, yes! Well, I mean, all they're doing is . . . it's kind of catch twenty-two! They're [BLD03-ORG05] not paying fees, as they see it, but what they're doing is they're paying fees through subcontracting. And the subcontractor [secondary construction contractor] is not going to do it for nothing.

BLD03-ORG06-INT01: Was this the only element of subcontracted design?

BLD03-ORG06-REP01: No. Well, there were other elements. For instance, there were the precast concrete floors – it is quite usual to go out to somebody like \*\*\*\*\* on the basis of spans and structural loads and the like. They'd do that. That would be quite normal. Roof trusses? Again, that was a structural element. The lift? Again, it is quite normal to go out with the lift. There were elements of, not just windows, but feature glazing – entrance glazing, etc. We ended-up with \*\*\*\*\*. Again, we did, if you like, generic layouts and elevational treatments because we wanted to see it, but without too much detail. \*\*\*\*\* did detail all of that. All of the mechanical and electrical stuff was done by subcontractors [secondary construction contractors]. So there was a fair amount of subcontracted design.

BLD03-ORG06-INT01: The extent to which subcontractors or suppliers were responsible for the provision of project-specific design

elements appears to have been relatively high during the building project?

BLD03-ORG06-REP01: Well, you see, what actually happened was that . . . maybe, when you speak to BLD03-ORG05 . . . BLD03-ORG05's management strongly believed that was the way to do it. BLD03-ORG05's site agent found it very, very difficult, because at no time did he really know who he was actually talking to. And I think if they [BLD03-ORG05] were doing just a basic speculative office building it would have worked – they would have done it! But because they [BLD03-ORG05] had a client [BLD03-ORG01] already, who knew exactly what they wanted, it was actually proving to be quite difficult for them [BLD03-ORG05]. For example, when they [BLD03-ORG05] were doing, let's say, a basic lighting layout, they walked into a lot of trouble. Why? Because BLD03-ORG01 wanted a certain lighting level due to the large number of computers that they use during their work. I mean, some of their [BLD03-ORG01] people had four or five computers per desk, you know, they do lots of programming and stuff. So they [BLD03-ORG01] were looking for good quality lighting, you know, anti-glare lighting and that sort of stuff. And all of the time . . . so they [BLD03-ORG05] were then going back to BLD03-ORG01, who were then, kind of, saying: "Well, you know, that's what we want, and if we don't get it, we won't take the building." So they [BLD03-ORG05] went back to their subcontractors [secondary construction contractors], who were, I think, being forced into not altering their prices so that they [BLD03-ORG05] could achieve these sorts of things. Because the brief was very simple, and BLD03-ORG05 had put this together as part of their legal package, really, without our involvement.

BLD03-ORG06-INT01: When did your organization become involved with the primary construction contractor [BLD03-ORG05] during the building project? To what extent was your organization involved with the development of the scheme design?

BLD03-ORG06-REP01: Well, we have to look at it hand-in-hand. I mean, I think, the size of the site and the client requirements really dictated that was it. The planners had fairly strong views in terms of what it should look like and so forth. So it was relatively easy to get to a footprint size, the building height, and what the thing should look like. There were the normal bits added in through discussions with building control. I mean, I think, the initial core building came together very quickly. Then there were discussions about

having internal partitions and offices and all this kind of stuff, but obviously that went on and on and on.

BLD03-ORG06-INT01: How did the end-user [BLD03-ORG01] become involved with the commercial property developer [BLD03-ORG02] during the building project?

BLD03-ORG06-REP01: BLD03-ORG02 basically agreed with BLD03-ORG01: 20,000 square foot of offices with a central core of services for a million pounds – in round figures. And that was the basis of it. That's how things got started.

BLD03-ORG06-INT01: Do you feel happy for me to start the interview?

BLD03-ORG06-REP01: Yes, of course.

BLD03-ORG06-INT01: Who was the client organization?

BLD03-ORG06-REP01: Well, BLD03-ORG01 was the end-user. They are an offshoot of a public organization, which obviously had new management. And I think they were on a learning curve as well, because instead of being part of the public-sector, they were now private and they had funding and they could spend what they wanted, really.

BLD03-ORG06-INT01: How much previous experience of the building process did the end-user [BLD03-ORG01] possess?

BLD03-ORG06-REP01: None, or very little. This was their first opportunity to gain experience of building. This was a result of their new private-sector status.

BLD03-ORG06-INT01: Who was your client organization? Did you consider the end-user [BLD03-ORG01] and the primary construction contractor [BLD03-ORG05] as two separate client organizations?

BLD03-ORG06-REP01: Yes. BLD03-ORG05 wanted to do the building and they obviously wanted to do it as quickly as possible – because there was a certain time restriction on the job – and as economical as possible. So we got involved quite a lot with BLD03-ORG01. And I think BLD03-ORG01 understood the basis of that contact. They [BLD03-ORG01] certainly asked our advice and looked to us for input on things like carpets and finishes. And once a quality of carpet was picked, you know, so much per square metre – they [BLD03-ORG01] had a set team of people within the organization that were involved in the project: there was the senior management, and then there was BLD03-ORG01-REP01, who was like a company



secretary, I suppose we should call her – and she [BLD03-ORG01-REP01] was very involved with us. And she [BLD03-ORG01-REP01] tried to cover all the aspects, because she was buying things like desks and so forth. And they [BLD03-ORG01] were quite keen to get good colour schemes and get as good quality of things as they could, within the prices that they knew. And they [BLD03-ORG01] certainly came to us for advice on the modular desks and such like.

BLD03-ORG06-INT01: Why did the end-user [BLD03-ORG01] decide to commission the building project?

BLD03-ORG06-REP01: I think out-dated facilities that they [BLD03-ORG01] were using. It was a very poorly maintained . . . probably an early sixties building that, I think, it had the same amount of accommodation . . . it was very poorly laid out. Certainly not up to our current standards. Lots of new partitions, both internally and externally, which I think led to heat problems. And I think that the . . . I can see that their [BLD03-ORG01] organization must have evolved quite a lot and become much more computer-orientated in the last ten years. And I think that really prompted them [BLD03-ORG01] to look for something. And I think they [BLD03-ORG01] felt that this was a better option than trying to find lettable accommodation, because somewhere like [this particular medium-sized town] in \*\*\*\*\* where they are based, doesn't really have any decent offices of a decent size.

BLD03-ORG06-INT01: Do you think that the end-user's [BLD03-ORG01] change in funding circumstances, i.e. from public- to private-sector, influenced their decision to commission the building project?

BLD03-ORG06-REP01: Yes, I don't think they would have gone down the road of getting involved in the lease and such like.

BLD03-ORG06-INT01: How much previous experience of the building process did the end-user [BLD03-ORG01] possess?

BLD03-ORG06-REP01: None that I was aware of. No, certainly not.

BLD03-ORG06-INT01: How much previous experience of working with the end-user [BLD03-ORG01] did your organization possess?

BLD03-ORG06-REP01: None.

BLD03-ORG06-INT01: How did your organization become involved with the end-user [BLD03-ORG01] during the building project?

BLD03-ORG06-REP01: Through BLD03-ORG05. We were approached by BLD03-ORG05. And, obviously, to short cut the briefing system, we were involved with BLD03-ORG05 and BLD03-ORG01 and eventually BLD03-ORG07. Because, basically, it was sit down and have several meetings and get the basis of what everybody was looking at. And I think once that was aired, it was then a case of individual meetings. We had individual meetings, obviously, with BLD03-ORG07 and also with – quite a few meetings – with BLD03-ORG05. And we established how we were going to build the thing and detail the thing. So I think the basis of the block design – the footprint of the building – was pretty much dictated by the site and client requirements.

BLD03-ORG06-INT01: How did the commercial property developer [BLD03-ORG02] become involved with the end-user [BLD03-ORG01] during the building project?

BLD03-ORG06-REP01: I don't really know. I think they [BLD03-ORG02] literally approached BLD03-ORG01 as part of a larger development proposal. I think there were discussions about the possibility of developing what was an old industrial site adjoining BLD03-ORG01's old 1960s building. And certainly to achieve proper access, BLD03-ORG01 had to be relocated. And I think at that point . . . that probably triggered the discussions between an outdated building and the possibility of raising cash to pay rent, etc. This prompted the thing being set up. But we weren't really part of those initial discussions.

BLD03-ORG06-INT01: Who was the commercial property developer?

BLD03-ORG06-REP01: BLD03-ORG02. They're a sister company to BLD03-ORG05.

BLD03-ORG06-INT01: How much previous experience of working with the commercial property developer [BLD03-ORG02] did your organization possess?

BLD03-ORG06-REP01: I don't think we have had . . . I might be wrong on this . . . I certainly haven't had any experience of working with them as a developer [commercial property developer]. We've worked with them as a contractor [primary construction contractor].

BLD03-ORG06-INT01: How much previous experience of working with the primary construction contractor [BLD03-ORG05] did your organization possess?

BLD03-ORG06-REP01: We have worked with them as a contractor [primary construction contractor] several times before.

BLD03-ORG06-INT01: How much previous experience of working with the primary construction contractor [BLD03-ORG05] did you possess?

BLD03-ORG06-REP01: Similarly, I have worked with them a couple of times before.

BLD03-ORG06-INT01: To what extent did the primary construction contractor [BLD03-ORG05] employ secondary construction contractors?

BLD03-ORG06-REP01: No, they had their own core site staff and labourers. So they did act as contractors [primary construction contractors]. And it was BLD03-ORG05's \*\*\*\*\* office that built the thing. But the legal side of it was done by another BLD03-ORG05 office – in \*\*\*\*\*. And we did get slightly involved with semi-producing drawings to form all the legal packages. But it was really kept as a separate thing. The people, generally, who were involved in the construction process weren't involved in any of the legal aspects of the job.

BLD03-ORG06-INT01: How much previous experience of working with the representative of the primary construction contractor [BLD03-ORG05-REP01] did you possess?

BLD03-ORG06-REP01: None.

BLD03-ORG06-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD03-ORG06-REP01: I think in the same way as we treat any other design and build project. The way we tend to do it is we . . . we try and achieve the local authority approvals as quickly as we can. That then defines, really, what the materials are – certainly, externally. We try and sit down with the contractor [primary construction contractor], and sometimes they have strong views in terms of things, say like, roof tiles. I don't think everything is necessarily the cheapest. There are things like: "How quickly can you obtain materials?" And what we tend to do is then analyze what the contractor [primary construction contractor] needs in order to build it. And we have found that over the years each design and build contractor [primary construction contractor] has different requirements: some want everything, some are very happy to have the basic

approvals and the basic layouts, and some are happy to take onboard some of the work themselves. What we ended up doing for BLD03-ORG05, and, again, it was agreed it was the basic layouts – certainly, dimensional layouts – we then looked at drawings for the main core areas and, obviously, details for things like staircases. We then went on and did things like sections, where we did 1:20 scale external wall sections, which showed the building height. But we kept everything in generic terms – as one way we found of doing it. So, rather than saying: “\*\*\*\*\* precast concrete floors”, we said: “A precast concrete floor, within a certain structural zone.” Because we didn’t know at that stage what it would be. We can take a guess, because we have had experience of doing the same. Blocks are blocks! We just specify weight and density. It’s never specified who or what they are. So you never see on a drawing that a block is a \*\*\*\*\* block. And they [primary construction contractor] can go around as many people as they want and get the prices. And this is the way we pull the thing together.

BLD03-ORG06-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD03-ORG06-REP01: Project leader. Really to monitor and achieve the work that was required by BLD03-ORG05 and the local authority and any of the other consultants involved, which really meant deadlines. There was one other person involved for a short period, due to timescales. Really to keep the job within our cost budgets. Attend meetings – we had regular meetings with BLD03-ORG01 and BLD03-ORG05 – we had to report on progress and problems and variations. And really just to monitor the thing and to be the point of contact.

BLD03-ORG06-INT01: How would you describe the building project?

BLD03-ORG06-REP01: In terms of the contract or in terms of construction?

BLD03-ORG06-INT01: Both.

BLD03-ORG06-REP01: Well, in contract, it was design and build. Probably not the most standard form. It was unusual in the fact that there was the developer [BLD03-ORG02] as well. But from a day-to-day point-of-view, it was a design and build project. As I say, there were some unusual characteristics. For instance, they [BLD03-ORG07] didn’t develop the structural design, which seems having gone to BLD03-ORG07 in the first place, seems silly not to . . . to go down that road. That certainly led to delays at the beginning of

the design process, and trying to find out how the thing was held together. In terms of how the building was constructed, it was fairly straightforward – a two-storey office block. There was nothing difficult at all about it.

BLD03-ORG06-INT01: What was the location of the building project?

BLD03-ORG06-REP01: [A medium-sized town] in \*\*\*\*\*.

BLD03-ORG06-INT01: Were there any unusual or unforeseen site difficulties?

BLD03-ORG06-REP01: Well, it was right next to a cricket ground. Actually, very close to the cricket ground. So one side of the building had to be treated as such, with things like . . . the glazing had to be toughened. There were some problems in the fact that we had the site survey, which was done as a level survey and a dimensional survey by BLD03-ORG05 themselves. The site was fairly flat, so there was nothing particularly on it. But there was a lack of real information in terms of the underground services: drainage, for instance. We didn't have very much information on that. The drainage was a little bit hit and miss. There was a lot of scurrying around on site trying to find where things could go, rather than trying to plot it into the building. But there were no other problems. There were site restrictions in terms of the fact that the site was fairly tight, and given that there was an existing building within about two metres of it, which then had to be demolished afterwards. Plus site cabins. So there wasn't much space.

BLD03-ORG06-INT01: What was the original budget for the building project at the briefing stage?

BLD03-ORG06-REP01: I am not sure if I can remember off-hand. I think it was in the order of about £800,000. But as discussions took place on what their final requirements were, we ended-up with a building roughly about a million.

BLD03-ORG06-INT01: Was that the cost estimate of the building project after the scheme design stage or prior to the scheme design stage?

BLD03-ORG06-REP01: It was . . . really, during the course of the project, even as fitting-out was going ahead, there was quite a lot of additional work added in: glazed partitions and so forth. Some of it . . . because we were on a fixed fee element, and we weren't issuing valuations or anything, we didn't really get too involved on what the sum was. So we weren't really party to those discussions.

BLD03-ORG06-INT01: How much of a problem did the escalating design workload influence your organization when you had initially accepted the project on a fixed fee basis?

BLD03-ORG06-REP01: Well, I think within a fixed fee . . . I think the general experience we have in doing these things, as a kind of . . . what I would describe as a 'buggeration factor', you know – you know that you are going to draw something and you can guarantee that that drawing is going to go into the bin three weeks later, and you start gain and you add things in. There is a certain amount of scratching around and alterations. And I think that is part of the process. I think most companies realize that, you know, if you say you are going to do it for such and such, there is a certain element of re-draw. You never . . . on any job, you never do one drawing and that's it from start to finish. There are always amendments, revisions and improvements.

BLD03-ORG06-INT01: So that was not a problem for your organization?

BLD03-ORG06-REP01: No, we . . . I think we felt that . . . overall, the thing . . . the elements that BLD03-ORG01 were asking for were improvements to the overall job, which, you know, if you were going to put it forward as a job that BLD03-ORG06 had been involved in, I think, you know, it would make the project better. In a lot of cases, because we weren't doing detailed work, it meant fairly small alterations. In a lot of cases it was more retrospective stuff that they required, for building manuals, legal purposes, rather than from the point-of-view of actual construction purposes.

BLD03-ORG06-INT01: What was the final account?

BLD03-ORG06-REP01: I am sorry; I am not party to that information.

BLD03-ORG06-INT01: How long did it take to settle the final account?

BLD03-ORG06-REP01: I wouldn't have thought it would have taken too long, because it was a design and build project, anyway. They [BLD03-ORG05] would have been on a sum. And, I think, only the variations that were requested by the end-user [BLD03-ORG01] – these were, basically, discussed at meetings. But I wouldn't have thought there would be a great deal of problem with the end sums.

BLD03-ORG06-INT01: What date did construction work start on site?

BLD03-ORG06-REP01: These might not be the actual dates, but, basically, it was twenty-five working weeks on site. We had . . . in the program there were four weeks for an initial design period,

and a lot of it, really, was to do with the exchange of contracts. The exchange of contracts was something that went on for quite a long while. And things really didn't get started that quickly— they were held up. So there was actually a much longer period than first imagined. It was twenty-five working weeks on site, and then beyond that there was another six weeks for demolishing the existing building and to do the external works. So, in all, about six months.

BLD03-ORG06-INT01: What date did construction work start on site?

BLD03-ORG06-REP01: I have got down here that it was the 10 October 19##, and they moved-in in April 19## – I think that actually went back a month, in reality. I think they moved-in in May. There were no delays during the actual construction period. The only delays were the exchange of contracts, which obviously triggered the job.

BLD03-ORG06-INT01: What type of construction contract was used?

BLD03-ORG06-REP01: JCT 81 with contractor's design.

BLD03-ORG06-INT01: What tendering procedure was used?

BLD03-ORG06-REP01: I believe BLD03-ORG01 appointed them [BLD03-ORG02] directly. I don't think there was a competitive element. I might be wrong in that, but it is not something we were aware of.

BLD03-ORG06-INT01: How did your organization become involved with the primary construction contractor [BLD03-ORG05] during the building project?

BLD03-ORG06-REP01: They approached us direct.

BLD03-ORG06-INT01: Did the primary construction contractor [BLD03-ORG05] employ an external construction cost consultant?

BLD03-ORG06-REP01: No, they had in-house quantity surveyors.

BLD03-ORG06-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD03-ORG06-REP01: Well, things like the lift, which was a very basic specification: two-storey, eight-person lift, and it was left to them to do that. The mechanical and electrical was reasonably specified, and they worked to our layouts. Things like staircases – metal staircases – we did the

detailed design, which, I think, was slightly modified by a subcontractor [secondary construction contractor]. And, again, the same with things like the glazing, they may have simplified some things, but the principles were what we were looking for.

BLD03-ORG06-INT01: How much previous experience of working with the secondary construction contractors or suppliers did your organization possess?

BLD03-ORG06-REP01: They were all subcontractors [secondary construction contractors] to BLD03-ORG05. The only one that we had previous experience of working with before was the lift manufacturer. Oh, and also the glazing company, \*\*\*\*\*. But we weren't familiar with any of the others.

BLD03-ORG06-INT01: What types of organizations formed the design team?

BLD03-ORG06-REP01: The design team consisted of ourselves and BLD03-ORG07. Their main involvement was the ground conditions.

BLD03-ORG06-INT01: Did the end-user [BLD03-ORG01] or the commercial property developer [BLD03-ORG02] specify any of the design team members?

BLD03-ORG06-REP01: No. They basically allowed BLD03-ORG05 to do what they wanted.

BLD03-ORG06-INT01: How much previous experience of working with the structural engineering design consultant [BLD03-ORG07] did your organization possess?

BLD03-ORG06-REP01: We have worked with BLD03-ORG07 on a number of jobs.

BLD03-ORG06-INT01: How much previous experience of working the structural engineering design consultant [BLD03-ORG07] did you possess?

BLD03-ORG06-REP01: Yes, I have worked with BLD03-ORG07, but not with that particular office.

BLD03-ORG06-INT01: To what extent did the primary construction contractor [BLD03-ORG05] influence the building design?

BLD03-ORG06-REP01: I think there were comments made in terms of, say, decorative features, which they [BLD03-ORG05] felt were over and above the basis of providing a certain office



block, etc. So we scaled-down the elevational treatments so that it was optional, rather than necessary. They [BLD03-ORG05] certainly . . . they commented on every layout or elevational treatment that we produced. There was a lot of comment from planners about things like the type of brick, and I think they [BLD03-ORG05] certainly found it difficult to obtain a brick of the value that they'd allowed – so much per thousand – to satisfy the planners. There was an element in that.

BLD03-ORG06-INT01: To what extent did the planner's comments influence the relationship between your organization and the primary construction contractor [BLD03-ORG05]?

BLD03-ORG06-REP01: I think you become used to them. I think part of that is . . . the achievement part of design and build is trying to get the best for the amount of money that is available. I think BLD03-ORG05 were reasonable enough in the fact that they knew they had to satisfy BLD03-ORG01 – that it was a semi-quality building. I mean, we could have made it considerably cheaper and blander, and I think, you know, if you visit the building now, it's not an unpleasant building inside or outside. So they went along with quite a lot of it, I think. They certainly were not as hard-nosed as some design and build contractors [primary construction contractors].

BLD03-ORG06-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the end-user [BLD03-ORG01]?

BLD03-ORG06-REP01: 4.

BLD03-ORG06-INT01: The commercial property developer [BLD03-ORG02]?

BLD03-ORG06-REP01: Probably 4.

BLD03-ORG06-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG06-REP01: Probably 3.

BLD03-ORG06-INT01: The structural engineering design consultant [BLD03-ORG07]?

BLD03-ORG06-REP01: Probably 3. I think it is a bit difficult on BLD03-ORG07, because they didn't, at the end of the day, produce that much for us to work with.

BLD03-ORG06-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings,

telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations? First of all, the end-user [BLD03-ORG01]?

BLD03-ORG06-REP01: I would say between 2 and 3, depending on the . . . towards the end of the job, when we were discussing finishes, probably 2. I think, generally, throughout the length of the job, 3.

BLD03-ORG06-INT01: The commercial property developer [BLD03-ORG02]?

BLD03-ORG06-REP01: 2.

BLD03-ORG06-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG06-REP01: 6.

BLD03-ORG06-INT01: The structural engineering design consultant [BLD03-ORG07]?

BLD03-ORG06-REP01: 5.

BLD03-ORG06-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the end-user [BLD03-ORG01]?

BLD03-ORG06-REP01: I would say 2. I think, because we . . . I think, you know, quite often with a design and build contractor [primary construction contractor] you know that you can speak to clients. But you don't necessarily agree anything, because of cost implications. So I think, you know, we know what to say and what not to say.

BLD03-ORG06-INT01: The commercial property developer [BLD03-ORG02]?

BLD03-ORG06-REP01: I would say probably 1.

BLD03-ORG06-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG06-REP01: Probably 2.

BLD03-ORG06-INT01: The structural engineering design consultant [BLD03-ORG07]?

BLD03-ORG06-REP01: I think probably 1, because of their limited involvement.

BLD03-ORG06-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your

organization's relationship with each of the following organizations? First of all, the end-user [BLD03-ORG01]?

BLD03-ORG06-REP01: 1.

BLD03-ORG06-INT01: The commercial property developer [BLD03-ORG02]?

BLD03-ORG06-REP01: 2.

BLD03-ORG06-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG06-REP01: 3.

BLD03-ORG06-INT01: The structural engineering design consultant [BLD03-ORG07]?

BLD03-ORG06-REP01: 2.

BLD03-ORG06-INT01: What professional services did your organization provide during the building project?

BLD03-ORG06-REP01: We did architectural design, landscaping and we did more on, say, internal design. Things like, particularly, furniture we advised on quite heavily.

BLD03-ORG06-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD03-ORG06-REP01: Well we . . . obviously, there's the architectural element. We think of ourselves as designers as well, because some of the work we do doesn't end up as a building. Certainly, some of the transport projects that we get involved in, we'd be doing station design and graphics and things like that, which, you know, is not architectural, as such, so it's like a design element. We certainly think of ourselves as capable of doing interior design. We have a very strong CAD computer system. We now have systems where we can do a lot of modelling – graphic modelling – and we can do virtual-reality type of stuff, which we're trying to market as a separate entity, really. And we also list that we are development consultants, in other words, we can either find sites for development or vice versa. And we have within the practice landscape architects as well.

BLD03-ORG06-INT01: During the building project, to what extent did your relationship with the end-user [BLD03-ORG01] influence your relationship with the primary construction contractor [BLD03-ORG05]? Did you experience any problems?

- BLD03-ORG06-REP01: Not really. I think BLD03-ORG05 knew, or certainly the individuals within BLD03-ORG05 knew, that there is a level that they could talk to BLD03-ORG01 at. I also think BLD03-ORG01, as somebody who was not particularly involved in doing a project before, were a bit nervous about various things: particularly committing themselves to carpets, and again, things like the special units that they got for the computer desks, where we sat and looked at laminate colours. I think they were nervous, and they couldn't visualise in their own minds. And I think, certainly, BLD03-ORG05 were happy for us to take the front role in that respect and do the talking and come up with the ideas. Of course, then if there was a cost implication, that was soon flagged up. But I think they [BLD03-ORG05] were happy for us to talk in design aspects.
- BLD03-ORG06-INT01: To what extent do you think it was necessary for your organization to communicate directly with the end-user [BLD03-ORG01]?
- BLD03-ORG06-REP01: I think it would have had a detrimental effect upon the design of the building if we hadn't.
- BLD03-ORG06-INT01: To what extent do you think the primary construction contractor [BLD03-ORG05] may have thought that your organization was bypassing their contractual responsibilities with the end-user [BLD03-ORG01]?
- BLD03-ORG06-REP01: We never bypassed . . . I mean, we never spoke to BLD03-ORG01 without BLD03-ORG05's knowledge or approval. I mean, the general forum was that we had a monthly meeting where progress was reported and things were discussed. Things like walk-in systems into the building, given they had various security requirements. It was easier for us to sit in on those meetings and take the points that were raised, rather than, sort of, take them second-hand. And then we went out and we obtained . . . information, which we then passed to BLD03-ORG05, and we gave them a choice of shopping around on that basis.

## 22.2 INTERVIEW TRANSCRIPT BLD03-TRAN02

Organization Role: Structural Engineering Design Consultant

Organization Code: BLD03-ORG07

Respondent Role: Boundary Representative for BLD03-ORG07

Respondent Code: BLD03-ORG07-REP01

Interviewer Code: BLD03-ORG07-INT01

BLD03-ORG07-INT01: Who was the client organization?

BLD03-ORG07-REP01: BLD03-ORG01.

BLD03-ORG07-INT01: How much previous experience of working with the end-user [BLD03-ORG01] did your organization possess?

BLD03-ORG07-REP01: BLD03-ORG01? None. They mean absolutely nothing to us whatsoever.

BLD03-ORG07-INT01: How much previous experience of working with the commercial property developer [BLD03-ORG02] did your organization possess?

BLD03-ORG07-REP01: We've done a lot of work with BLD03-ORG05, but I can't really recall working with BLD03-ORG02 as a commercial property developer before. This was the first time that we'd worked with BLD03-ORG02 as a commercial property developer. [BLD03-ORG02 and BLD03-ORG05 are sister companies]

BLD03-ORG07-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD03-ORG07-REP01: We were employed by BLD03-ORG05, as opposed to BLD03-ORG02. We basically had very little, if anything, to do with BLD03-ORG02. Our client for payment would be BLD03-ORG05. BLD03-ORG05 was, effectively, defining what building they were going to provide to the developer [BLD03-ORG02], but that would be driven by the client [BLD03-ORG01]. In other words, the client [BLD03-ORG01] would say to the developer [BLD03-ORG02]: "This is the sort of building I want." And the developer [BLD03-ORG02] would say: "Well yeah, you can have this sort of building for this amount of money." And then he [BLD03-ORG02] would go off to see

BLD03-ORG05 and say: "Can you build me this sort of kit for this amount of money?" And BLD03-ORG05 would say: "Well yeah, within reason. We can build this building to the price. You can provide the building to the client, BLD03-ORG01, eventually." So, to a large extent, BLD03-ORG05 almost drove the shape and the specification of the building, saying: "If we've got to build it for a price, we're quite certain we can build this building. In the end, it may turn out to be a real cheap-do or a posh-do, because there's only a certain amount of money for this building." So BLD03-ORG05 then goes to BLD03-ORG06 and says: "Right, OK. We've got this amount of money to spend. This guy [BLD03-ORG02] expects this volume of building to this sort of spec. Do me some drawings." Now that sounds a bit crude, but that's what happened. So BLD03-ORG06 does some drawings of a building, goes backwards and forwards with BLD03-ORG05, and BLD03-ORG05 would say: "Yeah, OK. We can build that building for this amount of money." They [BLD03-ORG05] then go back to the developer [BLD03-ORG02] and say: "How does that stack-up?" And the developer [BLD03-ORG02] says: "It stacks-up OK!" So, eventually, the client [BLD03-ORG01] says: "Yeah, I can afford that building. That spec meets me. Push on!" So that's usually where we start. The building's already got its geometry, window layout, whether it's going to have a pitched roof, two floors or one floor; all that's done before we arrive on the scene. So the first time we get to know about this job is the drawing of it, which is already . . . it's preconceived: the shape of the building – not necessarily the structure – but the geometry of the building is there. So we were introduced to the job by the contractor [BLD03-ORG05] who provides us with a set of architectural drawings. They [BLD03-ORG05] then say: "There you are. That's what we're going to build. Get on and get it designed." So the first thing we do, after we've done one or two rough calc's, is have a word with the architect [BLD03-ORG06] to see what his preconceived ideas are: "Does he have any requirements? Should it be steel or concrete?" He [BLD03-ORG06] probably doesn't mind whether it's steel or concrete. That comes back to the contractor [BLD03-ORG05], because he's going to build it all of the time – it's a design and build. So he's [BLD03-ORG05] the boss, not the architect [BLD03-ORG06] – odd situations on D & B. "It's me Mr builder [primary construction contractor] who's building it. You, Mr Architect [architectural design consultant], draw what I want to build, basically." So we set off to have a steel frame on this job. There was no site investigation and no soil information at all. So we

instigated or recommended to the contractor [BLD03-ORG05] a site investigation contract. So he [BLD03-ORG05] immediately comes back and says: "Well do me a specification of what's required: whether boreholes or trial pits?" So we provide that specification. And so there's an SI contractor [secondary construction contractor] who sets away to do a site investigation. In the mean time, we're still doing some rough figures on the frame and the floors – to see what sort of foundation loads we're going to get. So we've got this information immediately to hand once we've got the soil information. As it turned out on this particular job, the contractor [BLD03-ORG05] wanted a steel frame. We didn't actually design the steel frame. What contractors [primary construction contractors] prefer to do on design and build jobs is to let the consultant [structural engineering design consultant] draw the steel frame in single lines and do what he [primary construction contractor] calls a performance specification. The contractor [primary construction contractor] then takes that off to anything up to six steelwork fabricators [secondary construction contractors] and says: "Give me a price for this bit of kit?" So the contractor [BLD03-ORG05] goes hawking the steel frame design around to various steelwork subcontractors [secondary construction contractors] until he gets a price he can live with, because, again, he's only got money built into his system. Once he [BLD03-ORG05] jells on that price, he then says to BLD03-ORG07: "OK, we've got a price for the steel frame. Does it actually work?" So he [BLD03-ORG05] comes to us and we start checking it. Now, invariably, it never does, because these lads [secondary construction contractors] are always trying to knock hell out of each other; they're always trying to get the cheapest job, and they skimp on the design. So we have to go through it altering the thing along a bit and getting it jiggled into shape, basically. So you've got a steel frame. During this time the SI contractor [secondary construction contractor] has progressed, and on this particular site, soil conditions weren't particularly good - they were poor. So we had to pile the site. So it finished up being on piles. Again, we go back to the contractor [BLD03-ORG05] and say: "Look, bad news lads, it's on piles." "Gulp!" Because the contractor [BLD03-ORG05] doesn't know before we set off what the soil conditions are, he's already given his prices – so he's stuck with it. Anyway, piles aren't that bad news these days; they cost money, but not that much. So the job became piled. There was a bit more bad news inasmuch as there was some contaminants found in the ground. Now contaminants, currently, are like a disaster to these

environmental people. You just need to mention the word contaminants and you get all sorts of green issues springing out of the ground and all sorts of other issues. But it was pretty low profile stuff and, eventually, we got it taken off site, because it was a just a thin skim of contaminants that went off site. But everybody was happy with it. We did a sound job. So we set off and design the pile caps, and we actually do the drawings, setting out the piles and designing the ground beams, pile caps, etc. We then give them to the contractor [BLD03-ORG05] and off he goes – that's the contract for the piling. Again, he [BLD03-ORG05] doesn't do the piling himself, somebody does that for him. Again, he [BLD03-ORG05] would hawk the piling system round to various piling contractors [secondary construction contractors] trying to get the cheapest price – knocking hell out of them to get right down to rock bottom. Again, the calc's come into us for looking at. And every time they [secondary construction contractor] cheat, because they're trying to cheat to get the price down. So you knock the piling guy [secondary construction contractor] into shape and eventually he [BLD03-ORG05] is happy as far as the piles go. So the piles go in. The contractor [BLD03-ORG05] has then got some drawings from us for the ground beams and the pile caps. So he [BLD03-ORG05] starts building – he's [BLD03-ORG05] away! In the meantime, we've already sorted the steel frame out. At the same time, to a certain extent, the, sort of, interface with the architect [BLD03-ORG06] – not that much on here – it went pretty well. It was a pretty straightforward building! You've got like a two-storey office block, what I would call a shell building – big open space inside, brick cladding and glass on the outside – not too technical, really. There'd be a bit of interface with the architect [BLD03-ORG06] to get the details – over the lintels, around the windows and this thing sorted out here and there – and also the roof, as well – whether the roof was going to be wooden roof trusses or whether it was going to be steel, up at an angle or on a pitch? So that would be the interface with the architect [BLD03-ORG06]. But all of the time, having to go back to the contractor [BLD03-ORG05], because the contractor [BLD03-ORG05] has got a lump of money for this job – he [BLD03-ORG05] hasn't got a bottomless pit. The architect [BLD03-ORG06] can't have what he wants necessarily; he's [BLD03-ORG06] driven by the contractor's [BLD03-ORG05] price. The contractor [BLD03-ORG05] wants to build a sensible looking building, appearance wise, for the eventual end-user [BLD03-ORG01] and for the developer [BLD03-ORG02], because, presumably, he wants more work off the same



developer [BLD03-ORG02]. So the contractor [BLD03-ORG05] keeps a steady eye on these details on these sorts of jobs. So the interface with the architect [BLD03-ORG06] here wasn't too demanding - inasmuch that he developed a job for the building before we even saw it. The builder [BLD03-ORG05] had already said: "Well, I can build that for a price." Our real interface with the architect [BLD03-ORG06] on this job was more to do with the external envelope, rather than the inside. The inside was just a big empty building - it's going to be used for office accommodation and the like. There'd be an interface with the architect [BLD03-ORG06] on the staircases - what I'd call the detail, really - external envelope, staircases, and to a certain extent, on the floor finishes - whether you're going to have a floor screed or whether you're going to have a power-floated concrete on PC units - pretty limited, really. I think on this job we were responsible for the external drainage, so the architect [BLD03-ORG06] didn't have to do anything with that. We advised on the car parks, as well. So the architect's [BLD03-ORG06] input on this was, really, wholly to do with the building. Nothing to do with the external works at all. But this seems to be the name of the game on design and build contracts. Contractors [primary construction contractors] seem to prefer the engineers [structural engineering design consultant] to do the drainage and external works, rather than the architect [architectural design consultant]. It's probably because that's what we're trained to do and the architect [architectural design consultant] isn't, basically.

BLD03-ORG07-INT01: To what extent did your organization have an involvement with the building services engineering design?

BLD03-ORG07-REP01: None. Absolutely none at all. There's nothing unusual in that. But when you say: "Building services", excluding the drainage, sometimes building services engineers [building services engineering design consultants] do the drainage. They will do the drainage inside the box until it gets to the perimeter of the building, and then they stop. And then that becomes consultant/architect [structural engineering design consultant/architectural design consultant]. But services inside, no. What would happen here is the builder [primary construction contractor] would go off to . . . well, it's not exactly what he calls a service engineer [building services engineering design consultant], but a sort of mechanical contractor - somebody who does electricals and probably that sort of thing. And they would design that themselves, you know. It's a bit of a . . . it always seems to be a weak link in all of these changes

in building jobs, to me! There's nothing unusual in this. In other words, you don't pay money for an M & E consultant [building services engineering design consultant] if you can get away with it. Go and get the contractor [secondary construction contractor] to actually design the M & E kit. And that's what happened here, sure as shot.

BLD03-ORG07-INT01: To what extent would this approach generate problems for your organization?

BLD03-ORG07-REP01: Yeah! Well, in the old days, what used to happen is that we would actually design the steel frame ourselves. We'd do all of the calculations for the steel frame, lock, stock and barrel – the whole thing! But this is when you go back to the old traditional route of procuring buildings. If you were doing it by producing a bill of quantities and that sort of thing, where you've got an architect [architectural design consultant], a quantity surveyor [construction cost consultant], an M & E consultant [building services engineering design consultant] and a building structural engineer [structural engineering design consultant] – he used to design the steel frame, go off and get the prices, and that price would go into the system, and he would decide who the steel frame man was going to be. So he [structural engineering design consultant] had a lot of control over who was going to be used to put this frame up. Now we have very little control. The building contractor [primary construction contractor], all the time, is driven by price: "Just give me a drawing of what I want, roughly, as a single line drawing. Give me a spec and I will hawk it around and beat hell out of somebody to get down to the cheapest possible steel frame that I can get!" Yeah, it causes us problems, because they [secondary construction contractors] cheat all of the time. They [secondary construction contractors] either cheat, not deliberately, but prove ignorance more than anything else, or they bend the rules and try and use what I call design dodges – to keep the weight of the steel down to keep their price down. Yeah, so that causes us problems and costs us money. We spend money checking their steel frame. Now, sometimes most of the lads [secondary construction contractors] will . . . if you say: "Look, this is wrong. That is wrong", they [secondary construction contractors] just buckle-in straightaway and say: "Yeah, OK! You're right." And there are other times where they [secondary construction contractor] bitch like mad and say: "No, no. You're wrong, we're right!" I mean, these arguments can go on for weeks – quite a lot of correspondence. That costs us money, that!

BLD03-ORG07-INT01: To what extent did the primary construction contractor [BLD03-ORG05] attempt to resolve these problems?

BLD03-ORG07-REP01: He [primary construction contractor] will do, eventually, if you don't get it sorted out. We have had occasions where we've said: "Look, we're sorry. If you want to stick with this steelwork subbie [secondary construction contractor], forget us. We will have nothing to do with it. What he [secondary construction contractor] is proposing is bloody nonsense." Then, usually, the contractor [primary construction contractor] starts to take an interest: "Oh, Christ! What's wrong? Is it that bad?" And the answer is: "Yes, he [secondary construction contractor] is that bad!" Usually at that time the subbie [secondary construction contractor] will cave in – he [secondary construction contractor] either wants the job or he doesn't. So he [secondary construction contractor] usually caves in – we usually win in the end. But it can become quite hard work and it costs us a lot of money, basically.

BLD03-ORG07-INT01: How much previous experience of working with the primary construction contractor [BLD03-ORG05] under a traditional form of procurement did your organization possess?

BLD03-ORG07-REP01: What I would call a bog standard contract? No, I think all of our work . . . I need to be careful with this . . . I think virtually every job we've done with BLD03-ORG05 has been design and build. I am trying to think of all of the jobs that we've done with them. I think they've all been design and build. So it's always been a case where they find a piling man [secondary construction contractor], a steelwork man [secondary construction contractor] and say: "Look at that, and see what you think of it?" No, we've never done a traditional contract with BLD03-ORG05. Nothing unusual in that, there's less and less of it, basically. That's the catch! As we have trouble with the steelwork contractors [secondary construction contractors], we also have trouble with the piling contractors, [secondary construction contractors] continually, about different factors of safety. I suppose it's piling and steel frames. I am trying to think of who else . . . timber truss manufacturers [secondary construction contractors]! We've had problems with them occasionally. Precast concrete floor manufacturers [secondary construction contractors], too! Everybody seems to think . . . they try to get away with the minimum every time. Now sometimes everything is alright – as long as it meets the code of requirements. But, invariably, it's when you get what I call grey areas in the codes of

practice or the British Standards; they [secondary construction contractors] just tweak the rules slightly to suit themselves. I mean they [secondary construction contractors] say: “Well, this is typical throughout the industry.” And you say: “Well, it may well be typical throughout the industry, but it doesn’t meet the British Standards. So, sorry lads, forget it. We’re not having it.” And that’s when we get arguments.

BLD03-ORG07-INT01: To what extent would these sort of problems have been alleviated if your organization had been involved in the development of the scheme and detailed building designs?

BLD03-ORG07-REP01: It wasn’t so much a detailed design. The architect [BLD03-ORG06] produced the geometry of the building, the volume of the building and the height. He [BLD03-ORG06] talked to the contractor [BLD03-ORG05] and the contractor [BLD03-ORG05] then went back to the developer [BLD03-ORG02]. The developer [BLD03-ORG02] then went back to the client [BLD03-ORG01] and said: “Look, is this what you want to buy?” I mean, this drawing would be like what I would call a glorified architect’s [architectural design consultant’s] sketch, showing the brickwork, pitched roofs, pretty windows, cars parked outside, etc. So the guy [BLD03-ORG01] would say: “Yeah.” That doesn’t bother us at all. You don’t need an engineer [structural engineering design consultant] to get to that stage: “This is a picture of what we’re going to build.” You don’t really need an engineer [structural engineering design consultant] to get to that stage – not on the size of this building. I mean, most architects [architectural design consultants] know that columns need to be at about five to six-metre centres. So they [architectural design consultants] will draw them in at about those centres. It would only be if something . . . if you got a hold of the drawing immediately and you saw he’d [architectural design consultant] been putting columns in at two-and-a-half-metre centres. Well, you’d say: “Look, you’ve flipped your lid! We don’t need all of these columns.” Or, conversely, if he’d [architectural design consultant] been putting them in at twenty-metre centres, we’d say: “We can’t cope with this.” So they [architectural design consultant] do have a bit of an idea about what is required – structurally – architects [architectural design consultants] that is.

BLD03-ORG07-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD03-ORG07-REP01: Our main role was to make sure that a proper site investigation was done; to design the foundation and to detail these; to make sure that the steel frame was adequately designed and fabricated – we went and had a look at it when it was up to make sure it was nipped-up correctly; and to co-ordinate with the architect [architectural design consultant] – you get a lot of problems around windows and lintel details. Therefore, we had to make sure that the thing was buildable – structurally – basically. My role was to co-ordinate all of these activities and to be the point-of-contact for BLD03-ORG07.

BLD03-ORG07-INT01: To what extent do you think the problem of trying to balance construction cost and project quality is typical of the design and build form of procurement?

BLD03-ORG07-REP01: Design and build contractors [primary construction contractors] will always lean towards cost savings – that's the name of the game! I mean, their [primary construction contractors'] line of tack is, once they've done the deal with the developer [commercial property developer], even though it's BLD03-ORG05 and the developer [commercial property developer] has done the deal with the client [end-user], everybody says: "Right, we're going to have this building for a million quid." The contractor [primary construction contractor] is laughing, to a certain extent, because he's got some drawings. The developer [commercial property developer] is happy with them. The client [end-user] is happy with them. The contractor [primary construction contractor] then says: "I'm going to give you that building for a million quid." Every penny he [primary construction contractor] can knock off it from there onwards is money in his pocket! So if he [primary construction contractor] can get that down by finding a cheaper steel frame or piles – straight cash trade – it's all money saved in his pocket. It's not like the old traditional way with bills of quantities and things like that, where the cash saving goes back to the client. It doesn't do that here. It's straight in the builder's [primary construction contractor's] pocket here. It works both ways though! Like I say, the problem we had here was the contractor [primary construction contractor] didn't know the ground was duff. I mean he [primary construction contractor] will have built something into his price to take care of it. He [primary construction contractor] didn't have an SI when he negotiated the contract.

BLD03-ORG07-INT01: To what extent did these unforeseen site conditions cause problems between your organization and the primary construction contractor [BLD03-ORG05]?

BLD03-ORG07-REP01: No, none. These contractors [primary construction contractors], although they take risks, they're not that stupid. He [primary construction contractor] has said: "I will build you this building on this site for this amount of money." He [primary construction contractor] didn't really know what's in the ground. He [primary construction contractor] might have done a bit of poking around and got some shrewd ideas that it wasn't going to be that simple; a pound to a penny he will have stuck something in to cover himself. He [primary construction contractor] will have stuck in a bit to cover the risk of the foundations. He [primary construction contractor] won't have lost money. That's my guess.

BLD03-ORG07-INT01: How did your organization become involved with the primary construction contractor [BLD03-ORG05] during the building project?

BLD03-ORG07-REP01: We have a long-standing relationship with BLD03-ORG05. We know BLD03-ORG05 very, very well indeed. We've done work for them elsewhere – all D & B. We get on well with their staff. They're not what I would call paperwork heavy. They listen to what we say, which is good – a lot of contractors [primary construction contractors] don't. They listen to what we say. They think we give them good advice. We've got them out of one or two slightly sticky problems in the past. And so when BLD03-ORG02 came along and said: "Right Mr Builder, we've got a job." And BLD03-ORG05 said: "Right, we'll use BLD03-ORG07 if that's alright with you?" So that was how we were introduced.

BLD03-ORG07-INT01: Did the primary construction contractor [BLD03-ORG05] work with an external construction cost consultant to provide design/construction cost information prior to establishing a guaranteed maximum price?

BLD03-ORG07-REP01: No, the usual form is . . . I am not too sure what happened . . . the usual form is . . . when he is building his price up to go back to the developer [commercial property developer], occasionally, they will employ an external QS [construction cost consultant], because they haven't got the staff themselves. They will let both the architect [architectural design consultant] and the engineer [structural engineering design consultant] build up their drawings and say: "Look, this is it." And the contractor

[primary construction contractor], because usually he has no staff at all these days, sometimes will go off and employ an external QS [construction cost consultant] to bill it for him. And the builder [primary construction contractor] will price its own and say: "OK, I can live with that." I don't think here this contract wasn't that big, although it was reasonable? I think they did their own QS'ing [construction cost consultancy] work. In other words, they put the price together themselves. But it's not unusual to do it the other way these days. In fact, on biggish jobs, it's quite usual for somebody, like the \*\*\*\*\* of this world and people like that, to say: "Oh Christ, we're hard pushed for staff this month. We'll chuck all that out to \*\*\*\*\* and they'll bill it for us, and then we'll price it." That didn't happen here. I don't think that happened here. I don't think that happened here. I am sure they did there own take-off and price check.

BLD03-ORG07-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD03-ORG08] did your organization possess?

BLD03-ORG07-REP01: No, we hadn't, and I remember this quite specifically. It was somebody we hadn't heard of before. I saw his name in the file before and I was quite surprised. It was somebody out at \*\*\*\*\* I think it was BLD03-ORG08, or whatever it was. And I remember thinking when I opened the file: "That was him." And we've never heard of him again since. So we had no experience of him at all, and we did have one or two problems with him. So they meant nothing to us, which is quite unusual these days. I mean, there's not that many steelwork subbies in the world.

BLD03-ORG07-INT01: How much previous experience of working with the architectural design consultant [BLD03-ORG06] did your organization possess?

BLD03-ORG07-REP01: Not that much, I don't think, to be honest with you. They're a firm that's come up rapidly over the last few years, I would say. They didn't do any injustice, I don't think. They seemed to do quite well. I think we've only bumped into them a couple of times before elsewhere. We've worked with them on a retail centre down at . . . just let me get my bearings . . . down at \*\*\*\*\* That was worth about £4 million. It was unusual inasmuch that BLD03-ORG06 was in \*\*\*\*\* and the job was in \*\*\*\*\* and we were here. That went well. And we worked with them on another job: a hypermarket on the banks of the \*\*\*\*. Eventually . . . it

was an odd job that . . . it was started off by a developer [commercial property developer] who we were working for. The developer [commercial property developer], all the time, was trying to build up a price to see what he could get this thing built for, without employing a builder [primary construction contractor]. And, I think, eventually, he [commercial property developer] ran out of funds – he couldn't fund it. And so, eventually, he sold off all of the information to ORGANIZATION 3A and said: "There's the site and there's all of the information for it priced." And then we all stood back slightly and waited to see what happened, because ORGANIZATION 3A had bought this parcel of land and bought all of the information to develop a hypermarket. And we thought: "Well, he's going to do one of two things: he's either going to employ us, or he's going to go off and find his own builder [primary construction contractor]. And his builder [primary construction contractor] will find his own design team." But what did happen, eventually, ORGANIZATION 3A contacted BLD03-ORG06 and said . . . no, they contacted the builder [primary construction contractor] first of all – a builder [primary construction contractor] I hadn't hear of – we hadn't worked with them before. And we both sat back – BLD03-ORG06 and BLD03-ORG07 – and said: "We'll wait and see what happens". And eventually the builder [primary construction contractor] contacted BLD03-ORG06 only, and said: "Look, you've obviously worked on this site before, would you like to work on it again?" And BLD03-ORG06 said: "Yeah, for a fee." And they did quite well out of it. But the builder [primary construction contractor] had already got a relationship with an engineer [structural engineering design consultant] from previous jobs and said he didn't want BLD03-ORG07 on the team. So we were dropped away from that job. So we'd worked with BLD03-ORG06 twice before, apart from this job. Oh, sorry, we did another job with BLD03-ORG06 at \*\*\*\*\*. That's three jobs apart from this one.

BLD03-ORG07-INT01: How much previous experience of working with the architectural design consultant [BLD03-ORG06] did you possess?

BLD03-ORG07-REP01: None, apart from those three jobs that I've just mentioned: one at \*\*\*\*\*, one at \*\*\*\*\*, and the one at \*\*\*\*\*. I am trying to think . . . I think they would be about the same period 19##. The one at \*\*\*\*\* was probably about the same time as \*\*\*\*\*; it was for ORGANIZATION 3B in \*\*\*\*\*. And this one probably came third. And \*\*\*\*\* would be the last



job we dealt with BLD03-ORG06. So this must have been the third job we did with BLD03-ORG06. And the odd thing about this one, at BLD03-ORG06, is that this one was a different architect [architectural design consultant]. I think, previously, we'd worked with the same architect [architectural design consultant] within the BLD03-ORG06 organization. And this laddie [BLD03-ORG06-REP01] from memory, and I can't remember his name, but he was an architect [architectural design consultant] we hadn't dealt with before. So this was the first job that we had interfaced with BLD03-ORG06-REP01. So, no, I think this was the only interface that we'd had with BLD03-ORG06-REP01 before.

BLD03-ORG07-INT01: How much previous experience of working with the primary construction contractor [BLD03-ORG05] did your organization possess?

BLD03-ORG07-REP01: As I said before, yeah, we've worked on jobs with BLD03-ORG05. On many jobs well before this period. Quite successful as well.

BLD03-ORG07-INT01: How much previous experience of working with the primary construction contractor [BLD03-ORG05] did you possess?

BLD03-ORG07-REP01: Yeah, I've worked with BLD03-ORG05 many times before this job.

BLD03-ORG07-INT01: How much previous experience of working with the representative of the primary construction contractor [BLD03-ORG05-REP01] did you possess?

BLD03-ORG07-REP01: His name's down here as BLD03-ORG05-REP01, and I must say . . . yeah, that's BLD03-ORG05-REP01, I think it is. No, there's only about half a dozen lads at BLD03-ORG05. BLD03-ORG05-REP01 had been the project manager on other jobs with BLD03-ORG05, but there'd also been other people like BLD03-ORG05-REP02, and one or two other names that I can think of. But we were aware of BLD03-ORG05-REP01's existence. They're a fairly close-knit team at BLD03-ORG05. They all talk to each other. They all back each other up. So we were aware of BLD03-ORG05-REP01, but we hadn't actually worked with him, if you know what I mean, directly.

BLD03-ORG07-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, how would you rank the reputation of the end-user [BLD03-ORG01]?

BLD03-ORG07-REP01: It's difficult to say. We didn't have anything to do with them – it's the nature of the beast, D & B. But I'd guess around 4, *reputable*.

BLD03-ORG07-INT01: The commercial property developer [BLD03-ORG02]?

BLD03-ORG07-REP01: 4, *reputable*. Mainly because I had no evidence, one way or the other. He didn't do us any harm, so he must be reasonably good. But he wasn't really all that generous, so I would say 4.

BLD03-ORG07-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG07-REP01: He caused us no problems whatsoever. This was a good job. But why I say it was a good job is because we made money on it. Now it's hard work doing one of these design and build jobs, and it's a good job if you make money. So I'll have to give him 5. He didn't cause us problems.

BLD03-ORG07-INT01: The architectural design consultant [BLD03-ORG06]?

BLD03-ORG07-REP01: He didn't cause us problems either, as I am aware of. I am just trying to think . . . we had a pretty easy life with him, really. But I don't think I would go as far as 5. I think 4. I know BLD03-ORG06 had a lot of work on when we were doing this. They were very, very busy.

BLD03-ORG07-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contracts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations. First of all, the commercial property developer [BLD03-ORG02]?

BLD03-ORG07-REP01: Well, most of the interchange on this building was fast, because the faster the building is built, the faster the developer [commercial property developer] and the contractor [primary construction contractor] get their hands on the money – the lolly! So most of the work is done by telephone and fax – whacking the drawings out as fast as you can, and then using the telephone and fax machine. So although you've got bulky files . . . that's unusual on a job that was very good – and it was very good, because we made money. Most of the information on here would be by telephone/fax. You can't afford to hang around when an architect [architectural design consultant] is saying: "Send me a drawing. Pop it in the post. I'll have a look and send you it back again." You've lost three days – it's got to go and come back again. He

[architectural design consultant] won't wait. It's got to go out by fax this afternoon, be altered, and come back the same afternoon. So the bulk of the work, or what I call the preliminary brainwork – before it jells – is done by fax. It's the final drawing that goes to the builder [primary construction contractor] and says: "There you are pal, build that." So the only time we had contact with the developer [commercial property developer] would be towards the end. There were warranties on this job, anyway – everybody wants warranties these days. The developer [commercial property developer] would be concerned to get the warranty signed. The warranty usually excludes all kinds of materials and stuff, and usually says: "What thou shalt do and not do." And, usually, the client [end-user] wants to see the warranty as well. But the only contact with the developer [commercial property developer] tends to be right at the beginning of the job, when you've agreed the fees, and he say: "Right, we want a draft warranty". And draft warranties tend to go backwards and bloody forwards, because they have to go to all sorts of people. They're a pain in the bum, basically – warranties. But, eventually, everybody signs, and then there would be . . . yawn, a gap, and you never hear about them again until about the end of the contract. For whatever reason, they all seem to want copies again. So we then sign them up and that's it. So I would say we have no contact with the developer [commercial property developer] during the design and building stages. So overall, I would say *1, less than once monthly*.

BLD03-ORG07-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG07-REP01: *Several times daily – 7.*

BLD03-ORG07-INT01: The architectural design consultant [BLD03-ORG06]?

BLD03-ORG07-REP01: *Several times daily – 7.*

BLD03-ORG07-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD03-ORG02]?

BLD03-ORG07-REP01: Well, we never had much contact with them. So I would say *1 – never*.

BLD03-ORG07-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG07-REP01: It can't have been *never*, so I would say *rarely – 2*.

BLD03-ORG07-INT01: The architectural design consultant [BLD03-ORG06]?

BLD03-ORG07-REP01: There was no great hassle there. It was discussion more than anything else: "Do you want this? Do you want that?" So I would say 2.

BLD03-ORG07-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both you individual and your organization's relationship with each of the following organizations? First of all, the commercial property developer [BLD03-ORG02]?

BLD03-ORG07-REP01: *I – never.*

BLD03-ORG07-INT01: The primary construction contractor [BLD03-ORG05]?

BLD03-ORG07-REP01: It can't have been *never*. I would say 2 again.

BLD03-ORG07-INT01: The architectural design consultant [BLD03-ORG06]?

BLD03-ORG07-REP01: 2 again.

BLD03-ORG07-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD03-ORG07-REP01: We were set up in this world primarily as structural consultants in 19##. But then structural consultants really became civil consultants. So we say we're civil and structural engineering consultants. But more of late, we now call ourselves BLD03-ORG07, without specifying structural or civil. But the main format that we provide services on are what I call civils, which includes: drainage, roads, highways, bridges, building structures, geotechnics – which is just a specialised branch of civils – and we do a bit of environmental work as well. I would say we do anything that comes under the broad heading of civil engineering. Except we specifically do not do M & E. We design petrochemical foundations, but not the actual plant structure. We also do benzo plant foundations. Anything to do with the building side of it, like holding the plant structure up, yeah. But the mechanics of how you make petrol and all the rest, no. Nothing that's vaguely M & E at all, no.

BLD03-ORG07-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD03-ORG07-REP01: In this particular office here, or BLD02-ORG07 as a whole? BLD03-ORG07 as a whole was probably – until

the Ministry of Transport pulled the plug on the major highways schemes – I would say BLD03-ORG07 work . . . they employ something like four-hundred staff, or they did do until recently. Probably half of that staff would be working on major highways – this job's worth about £50 million [pointing to a highways project illustrated on the interview room wall] – motorway type schemes with bridges and structures. A quarter doing what I would call flood alleviation work – drainage, flooding problems – that's quite specialised work and we do that from our \*\*\*\*\* office. And the remaining quarter of BLD03-ORG07 is what I call broad-based building structures/civil-engineering structures. So the building structures are probably, you know, 15% - 20% of BLD03-ORG08 as a whole – at the most. And within the building structures we are involved in any industrial sector that requires a steel or concrete frame to hold up and make a functional building. So whether it's an educational building, or a power station, or a retail shed, to us it's of no consequence. We're constantly asked by various people: "What experience do you have of hospital work?" And I say: "What the hell does it matter!" It doesn't matter whether you call it a hospital building, an abattoir, or what, it is just a building and we have to provide a frame to hold it up. It is irrelevant what the function is. As far as I am concerned, as a structural engineer, it's of no consequence whatsoever.

BLD03-ORG07-INT01: For how many years has your organization been established?

BLD03-ORG07-REP01: BLD03-ORG07 started in 19##, and it started in this town in 19##. So that's 40 odd years we've been in this town. But it's been a firm since 19##.

## 22.3 INTERVIEW TRANSCRIPT BLD03-TRAN03

Organization Role: Primary Construction Contractor

Organization Code: BLD03-ORG05

Respondent Role: Boundary Representative for BLD03-ORG05

Respondent Code: BLD03-ORG05-REP01

Interviewer Code: BLD03-ORG05-INT01

BLD03-ORG05-INT01: Who was the client organization?

BLD03-ORG05-REP01: BLD03-ORG01.

BLD03-ORG05-INT01: What type of organization was the end-user [BLD03-ORG01]?

BLD03-ORG05-REP01: They're a computer software developer.

BLD03-ORG05-INT01: Why did the end-user [BLD03-ORG01] decide to commission the building?

BLD03-ORG05-REP01: The idea behind it was they were already resident on the site, but the building they were in was an old Portakabin-type unit – twenty or thirty years old – at the end of its life. At the same time BLD03-ORG01 were expanding and looking for additional office space. It was a natural time for them to develop more of that site – on the home base that they've already got – in order to get larger property and move from a clapped-out Portakabin into a new building.

BLD03-ORG05-INT01: How much previous experience of the building process did the end-user [BLD03-ORG01] possess?

BLD03-ORG05-REP01: None.

BLD03-ORG05-INT01: How did your organization become involved with the end-user [BLD03-ORG01] during the building project?

BLD03-ORG05-REP01: Right. That's probably the bit I can't answer, because I fit into the BLD03-ORG05 design and build contractor [primary construction contractor]. The link with BLD03-ORG01 was originally established through a partnership arrangement we have with BLD03-ORG02, our development side up at \*\*\*\*\* and BLD03-ORG03. The site . . . the area is something BLD03-ORG03 have

been marketing for about two or three years. The whole scheme is, I don't know, twenty or thirty acres. There's obviously a lot more work up there. And this was the first one that came out of the woodwork, really.

BLD03-ORG05-INT01: BLD03-ORG01 therefore occupied part of a larger area that was outlined for future development?

BLD03-ORG05-REP01: It's part of a much larger development. And I guess BLD03-ORG03 being up there at the time, talking around, stumbled into the BLD03-ORG01 proposals. And from there, pushed and developed the thing through.

BLD03-ORG05-INT01: How much previous experience of working with the end-user [BLD03-ORG01] did your organization possess?

BLD03-ORG05-REP01: None. It was the first time for this client.

BLD03-ORG05-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD03-ORG05-REP01: We became, as the design and build contractor [primary construction contractor], the major force in making this thing happen. At the end of the day, this end-user [BLD03-ORG01] was limited with his budget, unless we could make a viable scheme come up that met the cost parameters. The developer [commercial property developer], BLD03-ORG02, couldn't proceed with something with BLD03-ORG01. So we became very much the centre of the focus of all of the activity – the control for all of it. If we hadn't come up with a scheme at the right level of price, that wouldn't have happened, and that wouldn't have happened, the building wouldn't have happened, and they would have been still sat in that old Portakabin now.

BLD03-ORG05-INT01: How did your organization become involved with the commercial property developer [BLD03-ORG02] during the building project?

BLD03-ORG05-REP01: It's nice to think that our sister company [BLD03-ORG02] would negotiate a deal with us. I would be worried if they didn't. They had, if you like, an outline budget that they were talking to with BLD03-ORG01. But as time went on that became . . . it was reduced.

BLD03-ORG05-INT01: Did your organization experience any problems while working with your sister company, BLD03-ORG02?

BLD03-ORG05-REP01: No, none at all. It makes it easier to deal with the people, because you know them. The same company contractual issues still stay in place. It doesn't matter whether that's Joe Bloggs the developer [commercial property developer] or BLD03-ORG02, we still have all the contractual matters to put into place. Getting them sorted is just a little bit easier, because you've dealt with the guy a hundred times before – you know how he thinks – and he knows how we think.

BLD03-ORG05-INT01: How much previous experience of the construction process did the commercial property developer [BLD03-ORG02] possess?

BLD03-ORG05-REP01: They've done a tremendous amount of work around the country. Not so much in this particular area, and I can't particularly answer for what they've done outside of this area. This particular area – \*\*\*\*\* and \*\*\*\*\* – is not . . . does not have a big market slice of these types of semi-funded development projects.

BLD03-ORG05-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD03-ORG05-REP01: I would say that I was probably, if you like, the project manager – lock, stock and barrel, on this thing. I co-ordinated everything and everybody: contractor – architect, contractor – engineer, and contractor – subcontractor as well. I probably ended up controlling a number of the aspects with the developer [BLD03-ORG02]. It was our design and our price that made him [BLD03-ORG02] . . . that gave him the go . . . the green light to go. And we probably ended up with a loop through to there [pointing to the inter-organizational relationships diagram for the new-build construction subprocess (see Figure 14.9 on page 326)] because we were making sure that these people – the end-user [BLD03-ORG01] – were getting what they wanted more directly. I would say your chart [pointing to the inter-organizational relationships diagram for the new-build construction subprocess (see Figure 14.9 on page 326)] here, really wants . . . maybe ought to really have the developer [BLD03-ORG02] over there, with a link through like that and back to the end-user [BLD03-ORG01] and a direct line from the contractor [BLD03-ORG05] to the end-user [BLD03-ORG01]. Perhaps it shouldn't have really happened like that. Perhaps we should have been . . . and probably if it hadn't been BLD03-ORG02 and BLD03-ORG05, it would have been more of a direct link there. We would have been building for the developer [BLD03-ORG02] and



probably never ever met this guy [BLD03-ORG01]. This particular job, the job that we're talking about here, has all sorts of other criteria around and in it, up to the point that the only way that we could make this thing work was to be team leader/project manager, etc. These people [BLD03-ORG06] couldn't get the scheme resolved with the planning authority, and the planning authority weren't going to give it planning approval on the basis of their scheme. And we had to go in – we have a good relationship here with the local planning people. We went in and said: "Look, what do you really want?" And we got: "[This medium-sized town] was the ancient capital of \*\*\*\*\*, and we don't want a business park monstrosity." And we changed it. And what you see there [pointing to artist's illustration of the building project on office wall] – the top one – which is all traditional brickwork, concrete-based sandstone-effect sills and a slated roof – the planning authority accepted that. Having done that, we went back to the architect [BLD03-ORG06] and said: "Look, that's what the planning authority want. Crack-on and you do the detailing on that."

BLD03-ORG05-INT01: How did the architectural design consultant [BLD03-ORG06] react to this outcome?

BLD03-ORG05-REP01: Not very well, because they don't like being, if you like, subcontracted to a builder [primary construction contractor]. Well, they weren't really wanting to see it from the same point-of-view as we did. If they hadn't have done that, this job wouldn't have proceeded. They'd have lost the money that they'd spent on preliminary design and not got a job out of it. We made that happen by fitting the building into what the planning authority wanted, and by saying: "Look, you've got to do it like that or this job just won't happen." They took it on board and detailed it, but the job architect [BLD03-ORG06-REP01] did get a little bit irate about it at times. Ultimately, they've been flexible about it, because they've done it. So you can't complain about them about it, because they've done it. But a lot of architects [architectural design consultants] still live in a world that passed by twenty years ago, where they were the next party on from the client. And a lot of them are not very happy about this situation: where they end up almost at the bottom of the pack along with bricklaying subcontractors [secondary construction contractors] and roofing subcontractors [secondary construction contractors]. But that's the way the business is going - more and more clients are more and more cost conscious, and are looking at more and more

funding methods. We get involved with them at both of these levels.

BLD03-ORG05-INT01: How would you describe the building project?

BLD03-ORG05-REP01: It's a fairly traditional bricks and mortar job with a tiled roof. It's an open-plan office block about twelve to fifteen-metres span. We've more or less created that in clear span without . . . with a minimum number of columns. Yes, there are columns on the ground floor – steelwork – to support the first floor, and steelwork in for brickwork stability to the outer edges of the building, because there are no internal walls to provide brickwork stability. You just end up with great big shear walls running, I don't know, thirty to forty metres long. So we had to put the steelwork in to provide brickwork stability. The roof is formed from timber trusses and that gives the clear span right the way across.

BLD03-ORG05-INT01: Were there any unusual or unforeseen site difficulties?

BLD03-ORG05-REP01: Yeah, the ground conditions caused a problem. We had borehole information from the site next door, which indicated reasonable clays and should have allowed a deep concrete trench. Having local knowledge myself, and knowing that [this particular medium-sized town] can be a difficult area, we – not this feller who should have done it [pointing to the structural engineering design consultant on the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.9 on page 326)] – but we said that we wanted another set of boreholes on the site just to confirm. And we found sand and peat pockets in the clays and had to go to driven precast piles.

BLD03-ORG05-INT01: To what extent do you think the structural engineering design consultant [BLD03-ORG07] should have been responsible for providing much more accurate information about the ground condition?

BLD03-ORG05-REP01: He would have probably got away with it, but local . . . much more local knowledge certainly helps in some occasions. He would have been right to have gone with the boreholes that were off the site two-hundred yards away, but I know there have been a lot of subsidence problems in [this particular medium-sized town]. I only live two miles away and I personally know a builder [primary construction contractor] who has gone bust over them.

BLD03-ORG05-INT01: Did your organization work with an external construction cost consultant to provide design and construction cost information?

BLD03-ORG05-REP01: We do it all in-house. BLD03-ORG02, the developer and our sister company, appointed an external construction cost consultant [BLD03-ORG04] to check us.

BLD03-ORG05-INT01: To what extent did you find this a problem?

BLD03-ORG05-REP01: No, not at all. It's because of the funding arrangements that are involved with building societies and the guarantees that are involved with it as well. To meet the funding requirements, the developer [commercial property developer] has to do all the normal things. He has to put all of the normal consultants into place.

BLD03-ORG05-INT01: Did the end-user [BLD03-ORG01] or commercial property developer [BLD03-ORG02] specify any of the design team members?

BLD03-ORG05-REP01: No. All of that was in place in early days, as the developer [BLD03-ORG02] and the end-user [BLD03-ORG01] were going through the motions of coming up with a scheme. Once the scheme came to the viability stage, we got involved with it. And then we get thrown into the unenviable position of having to control the thing during construction and needing to take control out of a scheme that's already set. We, the contractor [primary construction contractor], did the final appointments of the design team. How it works to secure this type of business, these consultants [architectural and structural engineering design consultants] will normally provide a limited service to developers [commercial property developers], in terms of outline schematic type drawings that the developer [commercial property developer] can use with an end-user and say: "This is what we're proposing to build, blah, blah, blah. Are you interested? Yes or no?" And we got locked into the: "Yes, they're interested if these guys have already done the preliminary stuff." Well, it's . . . I could have gone somewhere else, but ethics tell me that these guys have probably spent a couple of grand already and I should honour that position.

BLD03-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD03-ORG02] did your organization possess?

BLD03-ORG05-REP01: We've done a lot of projects for our sister company, BLD03-ORG02.

BLD03-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD03-ORG02] did you possess?

BLD03-ORG05-REP01: Well, based on \*\*\*\*\*, I think we've only done one other project with them.

BLD03-ORG05-INT01: How much previous experience of working with the representative of the commercial property developer [BLD03-ORG02-REP01] did you possess?

BLD03-ORG05-REP01: I've worked with him before on other projects.

BLD03-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD03-ORG06] did your organization possess?

BLD03-ORG05-REP01: We've done one other job with them on \*\*\*\*\*.

BLD03-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD03-ORG06] did you possess?

BLD03-ORG05-REP01: I've never built anything before with them. They've done quite a bit of work with our \*\*\*\*\* office. They're obviously a \*\*\*\*\* partnership. There are an awful lot of local consultants based on \*\*\*\*\* that we tend to get more involved with.

BLD03-ORG05-INT01: How much previous experience of working with the structural engineering design consultant [BLD03-ORG07] did your organization possess?

BLD03-ORG05-REP01: None that I am aware of.

BLD03-ORG05-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD03-ORG08] did your organization possess?

BLD03-ORG05-REP01: None.

BLD03-ORG05-INT01: To what extent do you think the relationship between the structural engineering design consultant [BLD03-ORG07] and the structural steelwork secondary construction contractor [BLD03-ORG08] was successful?

BLD03-ORG05-REP01: Just the usual! All the subcontractors [secondary construction contractors], and in particular the steel people on a job like this, are contracted on a design and build basis as well. And part of their cost is for the design

element. And the steelwork contractor [secondary construction contractor] designs and details his own steel and submits it to the consultant [structural engineering design consultant] for the consultant [structural engineering design consultant] to do the final check for us, if you like. That design will be based around the basic principles of design provided by both of these two people [pointing to the architectural and structural engineering design consultants on the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.9 on page 326)]. These two [architectural and structural engineering design consultants] both do basic principles first, we'll pass it on to the steelwork subbie [secondary construction contractor], who does full design and full detail on it, and then we get a check and approval from this feller [pointing to the structural engineering design consultant on the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.9 on page 326)]. Every steelwork contractor [secondary construction contractor] in the land will design with the minimum amount of steel in. So there's always a little bit of toing and froing between these two guys [structural engineering design consultant and the structural steelwork secondary construction contractor].

BLD03-ORG05-INT01: Are you aware of any problems with the relationship that existed between the structural engineering design consultant [BLD03-ORG07] and the structural steelwork secondary construction contractor [BLD03-ORG08] during the building project?

BLD03-ORG05-REP01: Well, their [secondary construction contractor's] first design didn't work at all. It was far too light. They [secondary construction contractor] added about another seven or eight tonnes of steel in to beef-it-up. This type of relationship always has to be regulated, which is part of the principal contractor role [primary construction contractor]: keeping all of these people in check and making sure that they're doing what you want, when you want. I mean, some people on the outside may think it's getting a little bit difficult and problematic, but it's what you expect once you've been doing this thing for quite a while. It's what you'd expect on every job.

BLD03-ORG05-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the end-user [BLD03-ORG01]?

- BLD03-ORG05-REP01: What are the other categories that you've got to go through? Does honesty and integrity come into all of that, or is that part of this one?
- BLD03-ORG05-INT01: They could all be grouped together within the heading of reputation, if that is how you would like to consider it?
- BLD03-ORG05-REP01: Well, in that case, I would give 3.
- BLD03-ORG05-INT01: The commercial property developer [BLD03-ORG02]?
- BLD03-ORG05-REP01: 5.
- BLD03-ORG05-INT01: The architectural design consultant [BLD03-ORG06]?
- BLD03-ORG05-REP01: 5.
- BLD03-ORG05-INT01: The structural engineering design consultant [BLD03-ORG07]?
- BLD03-ORG05-REP01: 5.
- BLD03-ORG05-INT01: The structural steelwork secondary construction contractor [BLD03-ORG08]?
- BLD03-ORG05-REP01: Number 1. We won't be working with them again! They did a darn good job, but they . . . certain business ethics came into it at the end. So they dropped right off the rankings.
- BLD03-ORG05-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the end-user [BLD03-ORG01]?
- BLD03-ORG05-REP01: *Several times daily*. Number 7.
- BLD03-ORG05-INT01: The commercial property developer [BLD03-ORG02]?
- BLD03-ORG05-REP01: *Several times daily*. Number 7.
- BLD03-ORG05-INT01: The architectural design consultant [BLD03-ORG06]?
- BLD03-ORG05-REP01: The trouble is you can't average that one out. Up to, say, the end of the first month, you're doing number 7. Then once construction is underway and the design phase is really complete, you may be down to number 4. So, overall, I would say 5.

- BLD03-ORG05-INT01: The structural engineering design consultant [BLD03-ORG07]?
- BLD03-ORG05-REP01: The same as the architect [BLD03-ORG06].
- BLD03-ORG05-INT01: The structural steelwork secondary construction contractor [BLD03-ORG08]?
- BLD03-ORG05-REP01: That's happening at number 7 – obviously, in their duration.
- BLD03-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the end-user [BLD03-ORG01]?
- BLD03-ORG05-REP01: I am not sure how to answer that one. I don't know that I can answer that one. I think it's got to be answered in two stages again. One up to construction, which is *very often* – 5, and once the construction had started, which is probably *rarely* – 2. So, overall, I would probably say 4.
- BLD03-ORG05-INT01: The commercial property developer [BLD03-ORG02]?
- BLD03-ORG05-REP01: 2.
- BLD03-ORG05-INT01: The architectural design consultant [BLD03-ORG06]?
- BLD03-ORG05-REP01: 4. But that is how these things happen.
- BLD03-ORG05-INT01: The structural engineering design consultant [BLD03-ORG07]?
- BLD03-ORG05-REP01: 5.
- BLD03-ORG05-INT01: The structural steelwork secondary construction contractor [BLD03-ORG08]?
- BLD03-ORG05-REP01: 4.
- BLD03-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the end-user [BLD03-ORG01]?
- BLD03-ORG05-REP01: Well that is the opposite of the structural conflict – exactly the opposite! At the beginning there was none, because we take it all on board and adjust the price. So, *rarely* – 2. But at the end there was a lot, when they don't want to pay

for extras that we've done. So, *very often* – 5. Overall, I would probably say 4.

BLD03-ORG05-INT01: The commercial property developer [BLD03-ORG02]?

BLD03-ORG05-REP01: *Never*.

BLD03-ORG05-INT01: The architectural design consultant [BLD03-ORG06]?

BLD03-ORG05-REP01: I would say they didn't fall into that category. So I would have to say *never*.

BLD03-ORG05-INT01: The structural engineering design consultant [BLD03-ORG07]?

BLD03-ORG05-REP01: *Never*.

BLD03-ORG05-INT01: The structural steelwork secondary construction contractor [BLD03-ORG08]?

BLD03-ORG05-REP01: 5. That is the nature of structural steel.

BLD03-ORG05-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD03-ORG05-REP01: We can provide everything to do with the provision of a completed building: from land acquisition, search for land in the right area, design, construction, hand-over, financing of it, funding, up-turning of grants.

BLD03-ORG05-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD03-ORG05-REP01: We operate in the full spectrum of building, civil engineering and development.

BLD03-ORG05-INT01: For how many years has your organization been established?

BLD03-ORG05-REP01: 14 or 15 years – something in that order. I can't remember the exact number. Probably 15 years, I would say.



## 23 APPENDIX N: BUILDING PROJECT 4 (BLD04) INTERVIEW TRANSCRIPTS

### 23.1 INTERVIEW TRANSCRIPT BLD04-TRAN01

Organization Role: Architectural Design Consultant

Organization Code: BLD04-ORG02

Respondent Role: Boundary Representative for BLD04-ORG02

Respondent Code: BLD04-ORG02-REP01

Interviewer Code: BLD04-ORG02-INT01

BLD04-ORG02-INT01: During the process of completing my research project I am intending to undertake a number of in-depth case study interviews. This will enable me to investigate the relationships that existed between various construction-related organizations during the design and construction of several major new-build building projects.

BLD04-ORG02-REP01: Well, certainly with regards to the relationship with other consultants, I mean, I went to an interview a few weeks ago now, and it's something that I've been saying for a while. I mean, I worked – before I came here – with a multi-disciplinary organization where – in-house – we had architects [architectural design consultants], landscape architects [landscape architectural design consultants], quantity surveyors [construction cost consultants], structural engineers [structural engineering design consultants], services engineers [building services engineering design consultants], etc. And so OK, you walked out of your office door and walked up the corridor and chatted to whoever you needed to chat to – they were in-house meetings, and all of the rest of it. And in a curious sort of way that's the sort of relationship that we've, sort of, developed with the likes of BLD04-ORG04 and other consultants. I mean BLD04-ORG04, particularly when they were in \*\*\*\*\* – which is just round the corner – it probably was no longer or no further for me to walk, because of the relative size of the offices from here across to there, than it was in the other office to walk to another part of the office. And, yes, we know one another, you know, sort of, very well. And it's a bit like, almost, sort of a quasi-multi-disciplinary team. I mean, what's good about it is the fact there's no getting to know you, as I call it. In other words, if you meet a new

consultant, inevitably, you're looking at him and wondering: "Am I going to get on with you? And where are you coming from?" as the Americans, sort of, say. Well, that doesn't happen when we work with BLD04-ORG03 or BLD04-ORG05 or BLD04-ORG04 or, you know, I could go on. I mean, there are several other people as well, because we've known them over the years and, you know, the banter is pretty, sort of, light, if you like – right from the outset. There's no side. I mean, we all know one another and we all know what their attitude is towards things is. And it's just straight in and on with the job. And that's got to be good – as it seems to me.

BLD04-ORG02-INT01: This situation, which you have just described, is sometimes termed an inter-organizational alliance.

BLD04-ORG02-REP01: Well, I am sure it happens that way, or it most definitely does happen that way, as I say, with our long-term relationships with people that we know. I mean, I am sure it helps. Conversely, I think we try to be fairly friendly, shall we say, in our attitude. I mean, notwithstanding anything else, we work for eight hours or more a day, and if you can't set off with a view to making these enjoyable as possible, I mean, to my mind, that seems to be . . . has got to be one of the goals somewhere along the line. I mean, you've got to be fair and firm and all of the other things. But I think you've got to be fairly light-hearted about it. I mean, not to the point where it's all taken as a joke, but if you get too serious, there's no fun in it anymore. I think if the fun goes, you know, that sort of . . . doesn't help any relationship at all – so you might, almost, sort of say. Yes, so I mean, we like to . . . what is the phrase: "Like good craic!" I mean, you know, sort of . . . well, perhaps we'll get onto it in a minute. But with regards to doing BLD06, there we got on really well with the contracts manager [BLD06-ORG06-REP01] and all the rest of it. And he [BLD06-ORG06-REP01] and I had never met one another before. But, very quickly, we established the situation where, yes, we'd each of us got a, you know, a situation to defend, if you like. I mean, he [BLD06-ORG06-REP01] had to look after his company [BLD06-ORG06], as I had to look after the job and our client's [BLD06-ORG01] interest. And sometimes we wouldn't agree. But we didn't fall out, if you see what I mean – the difference between the two? I mean, you still had to continue to work with each other. So, yes, we each had our say. We didn't have to agree with one another, but that didn't mean, to sort of say, that you were daggers-drawn. And that was an adult, sort of, working relationship. And it was quite a good one, I thought, right

the way through. And that, you know, in very simplistic terms, is my philosophy to it all – all of the time.

BLD04-ORG02-INT01: It could almost be said that it is unfortunate that the construction industry and most of the professionals who work within it appear to have lost sight of your particular approach to inter-organizational relationships.

BLD04-ORG02-REP01: Well, there are people in this world who do seem, for some reason which is beyond my simplistic ken, who want to, sort of, bang heads, as I call it. I can't really see the object of that exercise whatsoever. You know, it's almost as if I haven't argued with the guy and sorted him out, then I have not done my job somewhere along the line. Well, I don't know, maybe it's me that's wrong? But that's not the perspective I come at it from at all.

BLD04-ORG02-INT01: Who was the client organization?

BLD04-ORG02-REP01: Well, it was BLD04-ORG01 on that particular development.

BLD04-ORG02-INT01: What type of organization was the client?

BLD04-ORG02-REP01: They're developers [commercial property developers].

BLD04-ORG02-INT01: Why did the commercial property developer [BLD04-ORG01] decide to commission the building project?

BLD04-ORG02-REP01: Not sure, I think is the answer to that. Commercial reasons, I guess, is the only sensible answer I can make. I mean, obviously, you'd have to ask them. But the development opportunity presented itself, and presumably being a commercial organization they saw the opportunity to develop and make money. That is to put it down to its rather crude bottom-line.

BLD04-ORG02-INT01: Did the commercial property developer [BLD04-ORG01] already possess the site when a decision to develop was made?

BLD04-ORG02-REP01: Well, again, I wasn't involved early on, but I can only assume. I mean, the site was . . . had been empty . . . or the building, anyway, being partially . . . well, largely vacated for some little while. There was a tenant at the back. So the building had been on the market for some little while. I think it was a case of . . . sort of, seeing the development opportunity and making an offer for the site, which was clearly accepted by the vendor. And it simply went on from there. But, I mean, it was as a developer

[BLD04-ORG01], you know, developing the building out to pass on to others to use – rather than as an end-user – that they were involved in the site.

BLD04-ORG02-INT01: How much previous experience of the building process did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG02-REP01: Well, it certainly wasn't the first scheme that they'd done. I mean, the developer [commercial property developer] started off as, actually, ORGANIZATION 4A, and then became BLD04-ORG01 through the time that the job was going on. But, clearly, it was not the first development that they'd done. So, I suppose . . . I really can't answer that coherently, other than, to sort of say, that there was nothing in it to suggest that it was the first time they'd walked around this particular mulberry bush. They'd got, you know, sort of a portfolio of buildings. So, yes, it wasn't a new venture, if you like.

BLD04-ORG02-INT01: How much previous experience of working with the commercial property developer [BLD04-ORG01] did your organization possess?

BLD04-ORG02-REP01: We'd done other developments, you know, with the client [BLD04-ORG01] – yes.

BLD04-ORG02-INT01: How much previous experience of working with the commercial property developer [BLD04-ORG01] did you possess?

BLD04-ORG02-REP01: I'd worked with them on . . . I mean, not actually . . . I'd put a bid in for another site, rather than actually work with them on one that was real – if I can put it in those terms. I knew the personalities.

BLD04-ORG02-INT01: How much previous experience of working with the representative of the commercial property developer [BLD04-ORG01-REP01] did you possess?

BLD04-ORG02-REP01: Well, other than . . . . Yes, it was the same individual that I'd been in touch with regarding a bid for another site in \*\*\*\*\* . So, yes. I mean, with regards to this job, it wasn't a case of me introducing myself to a new individual. I knew him from the previous encounter.

BLD04-ORG02-INT01: How did your organization become involved with the commercial property developer [BLD04-ORG01] during the building project?

BLD04-ORG02-REP01: Well, I think we'd been involved . . . I mean, it's through our, sort of, chairman and MD [BLD04-ORG01-REP02]. He [BLD04-ORG01-REP02] knew a gentleman by the name of BLD04-ORG01-REP01 who was the prime mover, if you like, in the developer organization [BLD04-ORG01]. I am not quite sure where that relationship, sort of, started, or indeed when it started. But that was the initial point of contact. And our chairman [BLD04-ORG01-REP02], you know, sort of, clearly . . . agreed to look locally for development opportunities. And I think that's how the thing, sort of, came about. In other words, we, being local, knew of the opportunity there – of the opportunity that was down the road. And BLD04-ORG01-REP01 was advised of this. And, as a result of that, we set up the team.

BLD04-ORG02-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD04-ORG02-REP01: Well, obviously, it was as architects and lead designer [architectural design consultant], I suppose, first and foremost, as far as I am concerned, because that's where my primary interest lies. We were also involved heavily in the planning [town and country planning] side of things. And as well as that, we also got heavily involved in the City Grant side of things, too. BLD04-ORG02-REP02, who was our in-house planner [town and country planning consultant] at the time, fronted the exercise with the DoE, or whoever it is gives the City Grant. So we had quite a heavy involvement in that.

BLD04-ORG02-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD04-ORG02-REP01: My roles? Well, as the designer [architectural design consultant]. Well, yeah, we'll say it is the designer [architectural design consultant] because it was a job I actually inherited. I mean, one of my other colleagues did a lot of the initial design work. For various reasons, I got involved as it was beginning to start on site. So, in other words, my first involvement was when the basic scheme had been designed. It was just before the demolition started and work started on site. But it was as the conventional, sort of, architect [architectural design consultant] role, if you will. In other words, as the designer [architectural design consultant] - someone who would orchestrate the detailing out of the building and the management of the building process.

BLD04-ORG02-INT01: How would you describe the building project?

BLD04-ORG02-REP01: Well, it was the development of an inner-city site for commercial purposes. It was the redevelopment of an already existing commercial development, which had simply outgrown itself. It was an old building. In fact, I think we discovered that . . . I mean, the interesting feature of the building has got to be the fact that it's got a grade II listed façade, which was retained. And from what we can understand, that was the second time the exercise had been done. It had been done back in 19##, we think, as well. But it was a whole mish-mash of small spaces, which couldn't be, you know, sort of, butchered, if you like, and converted into working open space that the modern office requires. So, therefore, it was, in fact, the wholesale demolition of an existing property to clear the site, with the exception of the retention of the listed facade and all that went with that, and then the reconstruction of a new multi-storey structure behind that façade and linking in with the façade. In other words, we designed it, or it was designed in a way that allowed the façade to work in its true sense. I mean, sometimes façades can be retained and they are like a film set, if you will. In other words, the relationship of the new behind to the old in the front is a bit, sort of, tenuous, to say the least, on occasions. Well that happens across here on the opposite building from where we are sitting. You have floors floating behind windows and that sort of thing. Now that doesn't happen on BLD04. It doesn't work absolutely as it once did, because on one of the floors the sills are at a rather curious high level. But, by and large, the way the floors work into the elevation, floor-by-floor, means window-by-window/floor-by-floor, if I am making sense. So, you know, it actually correlates to the floor that's behind it, rather than anything more contrived, shall we say, more than that. So, yes, it was the wholesale redevelopment, again, of a multi-storey, basement and five floors: that is a basement, ground floor, and then four elevated floors. This enabled us to create the parking facilities that seemed to be favourite in an in-town situation, because they are at a premium, and the sort of square footage – in terms of old English – that allows a return on the development investment.

BLD04-ORG02-INT01: Were there any unusual or unforeseen site difficulties?

BLD04-ORG02-REP01: No, I think not, particularly at least, anyway. I mean, there were, you know, with regards . . . I mean, I suppose it was the façade that was the most interesting area, insomuch as we had to modify the structure. This

was where BLD04-ORG04-REP01 and BLD04-ORG04 obviously became the primary consultant, rather than ourselves. We remodelled the ground floor elevation, and in remodelling the ground floor elevation we wanted to change the column positions. So there are four large riveted . . . I suppose they're cast iron, you know, sort of, beams which hold the whole façade in place. And where columns were, or had been previously, there are now no columns. So where once . . . where columns had been simply supported, they're now cantilevered. And various details of – to adapt the junction – had to be done, in order to create the pattern that we wanted. And behind the wall, when we were putting in the structure, there were problems in the ground. I mean, there were various burns and underground riverlets, or whatever, running in the street where the building is situated. And nobody quite knows where they are. And there was one very difficult patch, on one side, which had to be excavated to the point where the unit was standing on its nose trying to get rid of the grot. And, in fact, we managed, eventually, to get a firm bottom. And then, simply, the hole was filled with lean-mix concrete to give us a base off which to work with the foundations in that area. I mean, obviously, there are peculiarities of an inner-city site, in the sense that there's no elbowroom. So, everything from a contractual point-of-view, and this would be where the contractor [BLD04-ORG05] would probably speak more authoritatively than I would, you know, everything had to be imported to suit work on site. There is no latitude in saying: "Alright, we'll have the bricks all brought to site and stored ready for use." Because there was nowhere to store them. I mean, materials had to arrive to suit them being used and stored in the building proper. So it was quite a logistical problem for them [BLD04-ORG05] in that regard. And then whenever you're opening up on an old site, it tends to be a bit of a magical mystery tour, to a degree. I mean, you never know quite what you're getting until you get there, as you might almost, sort of, say. And certainly the state of walls – party walls, both sides – had to be looked at and considered. Beyond that, I think, sort of, nothing of any major dramatic nature occurred, to by quite honest. But the only other interesting areas were the vaults, which are actually under the street itself – at the front – the old coal cellars. The buildings were originally fed by, no doubt, a whole series of fires up and down the various levels. There was a coal shoot and trying to waterproof that just proved absolutely impossible. I mean, there was water seeping in, and short of literally digging up half of the street and tanking it on the outside, was an impossible exercise. You know, it proved impossible to do. Plus, the

fact that as it dried out – it was all brick arches – and what we were finding was, I suspect, the same sort of problem they have with sewers - that bricks were dropping. So we had to put in a series of props and inject a cement slurry to hold the whole thing steady and to avoid the street disappearing into the vault. So there were those sort of things that happened which, certainly it's true to say, we didn't plan on being involved in. But there are things which you can't necessarily foresee and you've got to just simply deal with it as it's presented.

BLD04-ORG02-INT01: What was the original budget for the building project at the briefing stage?

BLD04-ORG02-REP01: I don't know what it was at the briefing stage, no. I know what it was, certainly, when the contract was let. There was a series of discussions and negotiations between the quantity surveyor [BLD04-ORG03] and indeed the contractor [BLD04-ORG05] - it was a, sort of, negotiated arrangement with BLD04-ORG05, rather than a tendered arrangement. But, in essence, it was just a series of lump sums against the various elements, which were then tendered out later on. But by that time, BLD04-ORG05 were always involved in the process, if you like. So it was a quasi-negotiated tender with them.

BLD04-ORG02-INT01: What was the negotiated cost estimate?

BLD04-ORG02-REP01: If I remember correctly, it was £2,755,000.

BLD04-ORG02-INT01: What was the amount of the final account?

BLD04-ORG02-REP01: Yes, I mean it went up from that – but not massively so. And there I don't know what the final one was. I can go and get a file in a moment to work it out. I do remember things were added later on, you know, which, sort of, affected the price. I think, in round terms, it went up by about £50,000. So it went to £2.8 million, in round terms – that was the, sort of, level it went to. I know at the time BLD04-ORG01-REP01 dropped me a line, because it finished absolutely on time and within a reasonable distance of the asking price. And he [BLD04-ORG01-REP01] saw fit to drop a line and say: "Well done!" So that gives you some idea of what we achieved.

BLD04-ORG02-INT01: How long did it take to settle the final account?

BLD04-ORG02-REP01: I think it, sort of, was a pretty amicable thing. It had been settled as we went along, as you might almost sort of say, in the sense that each of the packages were tendered for.



So there was an element of settle as you go. No, by and large, I would say it was a fairly amicable sort of arrangement all round.

BLD04-ORG02-INT01: What date did construction work start on site?

BLD04-ORG02-REP01: Pass. It would be . . . well, I know it finished on 29 August 19## – I am pretty sure it was. No, it wasn't, it was 19##. And I am pretty sure we started a year earlier. So it was the summer of 19## that we started on site. It was about a 12-month contract period.

BLD04-ORG02-INT01: What type of construction contract was used?

BLD04-ORG02-REP01: JCT 80 private without quantities.

BLD04-ORG02-INT01: What tendering procedure was used?

BLD04-ORG02-REP01: It was a negotiated tender with BLD04-ORG05. I can't talk too much about that, because that negotiation was done before I got involved.

BLD04-ORG02-INT01: Who was the contract administrator?

BLD04-ORG02-REP01: BLD04-ORG02, or more specifically, it was me.

BLD04-ORG02-INT01: Did the commercial property developer [BLD04-ORG01] or your organization select the construction cost consultant [BLD04-ORG03]?

BLD04-ORG02-REP01: Well, again, that selection process was done before I got involved. I mean, if I can just simply guess, I would suggest BLD04-ORG01-REP01 would have asked our chairman [BLD04-ORG01-REP02]: "Who did we know and who did we use locally?" Recommend is not quite a word I want to use, but I can't think of a better one for the minute. And I would imagine that was the way the relationships were established. So BLD04-ORG03-REP01, I guess, would have been approached by our chairman [BLD04-ORG01-REP02] with a view to getting involved, and clearly the answer was: "Yes." And I guess the same thing would have happened with BLD04-ORG04 as well, as I say, because of this ongoing relationship that we all have.

BLD04-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD04-ORG03] did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG02-REP01: I think . . . well, he had, to my knowledge – yes. As it happened, BLD04-ORG03 was also the construction cost consultants on this other job that I'd been involved with. So he definitely knew the construction cost consultant previously [BLD04-ORG03] – yes.

BLD04-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD04-ORG03] did your organization possess?

BLD04-ORG02-REP01: Well, a fare amount. I mean, I personally have worked on . . . oh, gosh, four or five jobs in the time that I've been here with them, which go over a number of years. And there are other people who have worked with them on other jobs as well. So, I mean, I wouldn't really have a clue just how many jobs it is. But, I mean, it's certainly a relationship that's been ongoing for a good number of years, that's for sure.

BLD04-ORG02-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD04-ORG03-REP01] did you possess?

BLD04-ORG02-REP01: I had, as it happens, yes. I had worked with him several times before.

BLD04-ORG02-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD04-ORG02-REP01: Well, if I can explain the arrow there [pointing to the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.10 on page 327)]. I mean . . . no. What we did was we provided, you know, sort of base information. That is drawings, specifications, or whatever it might be for the various elements of the work. We didn't actually seek, directly, any subcontract [secondary construction contractor] tenders. They were sought by BLD04-ORG05, which explains the hard arrow, if you like, that's there. So, in other words, we passed information to the main contractor [BLD04-ORG05], who then sought information from subcontractors [secondary construction contractors], got the price, discussed with us who he was proposing to use, what their price was – that was with us and the quantity surveyor [BLD04-ORG03], of course, and then it wasn't until that process had been rubber stamped, as you might almost say, that the particular subcontractor [secondary construction contractor] would be appointed. But then, for instance, sort of, the steelwork subcontractor [secondary

construction contractor] would almost – it was the old figure eight situation – it should be between architect [architectural design consultant] to main contractor [primary construction contractor] and then onto other people, if you see what I mean? But we all agreed at the outset that because of the timescale that we're all working to, that is just too long winded for us to be acting as postman, which is all we would be doing in certain situations. So what we always, sort of, say is: "Right, if there is anything of detail that I would have to ask another party about, there is no reason why that can't be asked direct, provided there are copies of the question, correspondence or whatever it might be, sent to the other major parties involved." And that's what those arrows are for. So in the structural engineer's [structural engineering design consultant's] case, it would be ORGANIZATION 4B who was the steelwork subcontractor [secondary construction contractor]. There would be direct discussions between the two - be it talking about detail, be it the approval of drawings, etc. And the same with us. I mean, when it came to checking windows, or whatever it might have been, we would have got drawings in from the subcontractor [secondary construction contractor] and simply to cut down time – to avoid wasting time – the arrangement would be that they would send the drawings directly to us, advising the main contractor [BLD04-ORG05] of what they'd sent, when they'd sent it, and when, indeed, they wanted answers. And we would respond in the same way by getting it back, hopefully, on time and advising the main contractor [BLD04-ORG05] of what had been done. And only if there was a problem would we necessarily get together. And that was seen as being the expedient and most time effective way of dealing with it.

BLD04-ORG02-INT01: Apart from standard components, to what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD04-ORG02-REP01: Well, I suppose the one that just springs to mind as being, perhaps, the one that we worked most closely with would have been the stonework, I would have guessed, to the front façade. But beyond that, no. I think everything else was relatively run-of-the-mill, to be quite honest. I mean, we don't often use natural stone on a building. That's a fairly unusual occurrence; I have to honestly say in this day-and-age. If we do use stone, it is usually artificial stone. So there's nothing unusual or new about that. But, as I say, it was a fairly novel exercise to be involved with

natural stone as we were then. No, beyond that I can't think of anything that I would particularly want to pick out as being out of the ordinary.

BLD04-ORG02-INT01: Did the commercial property developer [BLD04-ORG01] or your organization specify any of the design team members?

BLD04-ORG02-REP01: Well, again, as with the quantity surveyor [BLD04-ORG03], I would suspect that the structural engineer [BLD04-ORG04] and the services engineer [BLD04-ORG04] were, sort of, appointed as the result of our recommendation, if you like. In other words, we would have introduced . . . I think . . . as I say, I can't be sure of this, because I wasn't around or involved with it at the time. But I am sure that would probably be the way, almost certainly, that it would have been done.

BLD04-ORG02-INT01: How much previous experience of working with the structural engineering design consultant [BLD04-ORG04] did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG02-REP01: No, I can't recall whether they had been involved with the client [BLD04-ORG01] on previous jobs, to be quite honest. No, I am not sure is the honest truth.

BLD04-ORG02-INT01: How much previous experience of working with the building services engineering design consultant [BLD04-ORG04] did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG02-REP01: Well, the structural [structural engineering design consultant] and services [building services engineering design consultant] engineers are the same company, BLD04-ORG04. So, I would say, it would be the same as for the services engineer [building services engineering design consultant] as it would be, if you like, with the structural engineer [structural engineering design consultant].

BLD04-ORG02-INT01: How much previous experience of working with the structural engineering design consultant [BLD04-ORG04] did your organization possess?

BLD04-ORG02-REP01: Oh, lots, I think is the answer to that. I mean, the first job that I did, and I've been here nearly twelve years now, was with BLD04-ORG04-REP01 himself, actually. So, I've known BLD04-ORG04-REP01 now for the best part of twelve years. And since that time, on and off, there

doesn't seem to have been times when we are not ringing one another up on the phone, and lots of other guises, through lots of other jobs. BLD04-ORG04 must be up there either first or second in terms of the structural engineer [structural engineering design consultant] most regularly used by the company.

BLD04-ORG02-INT01: How much previous experience of working with the building services engineering design consultant [BLD04-ORG04] did your organization possess?

BLD04-ORG02-REP01: I mean, pretty much the same as before. Yes, exactly the same.

BLD04-ORG02-INT01: How much previous experience of working with the representative of the building services engineering design consultant [BLD04-ORG04-REP02] did you possess?

BLD04-ORG02-REP01: Gosh, you get confused after a while. Can't think where, but yes. I already knew BLD04-ORG04-REP02. It wasn't the first time that I'd met him. I can't think of what job it was that I had approached him. Certainly, yes, as I say, there was nobody in this team that I hadn't either worked with before or knew quite well, if you see what I mean.

BLD04-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG02-REP01: I am not aware of that, I am afraid.

BLD04-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did your organization possess?

BLD04-ORG02-REP01: Again, I am not awfully certain on that one. I mean, I have certainly done other jobs with them, you know, a number since. I think we probably had, yes. But not personally.

BLD04-ORG02-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG02-REP01: Well, 4, I suppose.

BLD04-ORG02-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG02-REP01: 4 again.

BLD04-ORG02-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: I'll stick with 4.

BLD04-ORG02-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: And again, 4.

BLD04-ORG02-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG02-REP01: Well, as far as I say, it was a new experience as far as I was concerned. So I think I'll go for 3 on that one, in the sense that I didn't know one way or the other. I have to, sort of say, at that point that the experience was a good one. Not least of all because of the people they had on site.

BLD04-ORG02-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG02-REP01: Probably 4. That sort of order of things, anyway. And it probably would be 4/3, almost, to a certain extent. I mean, obviously, it varies. But on average, I would say it would be in the 4 band. Yes, we'll go for 4.

BLD04-ORG02-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG02-REP01: Well, that could vary. But I would say that's probably a 5 going on 6. Certainly, *several times weekly*, so we'll go for 5. Whether it was *once daily* is a new point. I mean, there would be times when it was more than *once a day*, on occasions. So on an average, if you like, I think *several times weekly* would be the best way I could describe it. I mean, the truth-of-the-matter is probably you talk with the QS [construction cost consultant], because he's involved in an ongoing basis all of the time and we're involved in an ongoing basis, too. The structural engineer [structural engineering design consultant] is obviously interested in structure, and once the structure is done, finished and up, I won't say his involvement stops, but by and large it falls off at a rapid rate of knots, at least, anyway. So there will come a point where, maybe, where it, sort of, comes back down the scale. But, certainly,

during the height of involvement, yes, it's *several times weekly*.

BLD04-ORG02-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: Well, we'll go 5 on that one.

BLD04-ORG02-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: I would go 5 again on that one, too.

BLD04-ORG02-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG02-REP01: Oh, that was done on a *once daily* basis throughout the job. I don't suppose during the course of the job, when it was on site, that there wasn't some form of communication at some point during every day that the job was on site. So it would be 6. I mean, there would be times when it would be *several times daily* as well, I mean, and then it depends. So I think if we've got to pick an average with regard to the contractor [BLD04-ORG05], I think I would pitch it around about the 6, I would have thought.

BLD04-ORG02-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG02-REP01: I would go 2 – *rarely*. I certainly wouldn't say it was *never*. I mean there were one or two occasions where we exchanged views, shall I say. But *rarely*. It was resolved in a good-humoured way at the end-of-the-day.

BLD04-ORG02-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG02-REP01: It sounds a bit glib to say *never*, but, I mean, I honestly can't think of a situation in truth where, you know, we . . . we each knew our role and played it, if you know what I mean. So, you know, down this end of the scale [pointing to the scale]. I mean to say, never seems a bit trite. I mean, it literally is in the boarder-line area, between 1 and 2, certainly. Well, if I had to choose between the two, I think I would say *never*.

BLD04-ORG02-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: I would go *rarely*.

BLD04-ORG02-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: I would go *rarely*, again.

BLD04-ORG02-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG02-REP01: Well, again, on this particular job it was definitely 2.

BLD04-ORG02-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organization? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG02-REP01: I would say 2.

BLD04-ORG02-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG02-REP01: 2.

BLD04-ORG02-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: 2.

BLD04-ORG02-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG02-REP01: 2.

BLD04-ORG02-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG02-REP01: 2. I know it's not very interesting. But, the fact is, that is the way the job went.



## 23.2 INTERVIEW TRANSCRIPT BLD04-TRAN02

Organization Role: Construction Cost Consultant

Organization Code: BLD04-ORG03

Respondent Role: Boundary Representative for BLD04-ORG03

Respondent Code: BLD04-ORG03-REP01

Interviewer Code: BLD04-ORG03-INT01

BLD04-ORG03-INT01: Who was the client organization?

BLD04-ORG03-REP01: Well, the client was BLD04-ORG01. It started, actually, as ORGANIZATION 4A, I think. The client name changed. I wasn't that involved with . . . I didn't really know how the client body was structured, but certainly the name changed throughout the course of the contract. But the people involved, I think, remained the same. Although one of the . . . one of the . . . the main developer [commercial property developer], I think, a chap called BLD04-ORG01-REP01, I don't know whether his name has been mentioned before, he was the prime mover, originally, when we had our first meetings. He [BLD04-ORG01-REP01] was the developer [commercial property developer], really, and it was his company – ORGANIZATION 4A – I think, that it started as? Yes, I think that's the way around. And I am sure the MD of BLD04-ORG02 [BLD04-ORG01-REP02] became involved. I am not sure whether he [BLD04-ORG01-REP02] had a . . . was involved or had an equity share in the development, or what the arrangement was. You know, I wasn't privy to that. Certainly, BLD04-ORG01-REP01 seemed to disappear from the scene, you know, after a while, because there were two schemes he [BLD04-ORG01-REP01] was going to be doing: this one and another one on the \*\*\*\*\* in \*\*\*\*\*. I am not sure whether, you know, the bubble burst on developments. I am not sure whether he [BLD04-ORG01-REP01] got into a bit of trouble, financially, or what, I don't know. Anyway, he [BLD04-ORG01-REP01] seemed to disappear away from the scene and the MD of BLD04-ORG02 [BLD04-ORG01-REP02] seemed to be the prime client [commercial property developer] then, who was really part of BLD04-ORG02, anyway.

BLD04-ORG03-INT01: To what extent to this arrangement, i.e. the relationship between the commercial property developer [BLD04-

ORG01] and the MD of the architectural design consultant [BLD04-ORG01-REP02] cause you any problems?

BLD04-ORG03-REP01: No it didn't, I don't think. It certainly didn't in this case. It may have done, I suppose. I don't think it would have affected our work very much, or our dealings. It may have done with the architect [BLD04-ORG02], I suppose, you know, being both the architect [architectural design consultant] and the client [commercial property developer] as well. I am sure BLD04-ORG02-REP01, no doubt, perhaps mentioned that. But I don't think it would really, no. I mean we . . . often don't have that much contact . . . well, in some cases we don't have that much contact with the client [BLD04-ORG01], you know. Sometimes we are appointed by the architect [architectural design consultant] and don't have that much contact with the client [BLD04-ORG01]. But, I mean, more and more, I think, we are getting more contact with the client [BLD04-ORG01].

BLD04-ORG03-INT01: Why did the commercial property developer [BLD04-ORG01] decide to commission the building project?

BLD04-ORG03-REP01: Well, I think they saw it as an opportunity of getting a return on the development. I think it was probably initiated when things were booming more, you know, in the middle to late '80s. And then it didn't stand up on its own as a viable development without grant support. So there was a certain, well, a pretty high level of City Grant input into the development, which made it viable. Well, I think that's what they [BLD04-ORG01] thought, I think, really, that the street where the development was to be constructed was an area where relatively high rents . . . at that time, the highest level of rents achievable in \*\*\*\*\* were on that particular street. So it looked like a decent development to do, really.

BLD04-ORG03-INT01: Was the building development speculative or pre-let?

BLD04-ORG03-REP01: It was speculative. It did stand empty for the best part of a year after it was completed. I think they [BLD04-ORG01] were a little disappointed. I think they [BLD04-ORG01] were, obviously, talking to people as soon as they decided to do it. But they [BLD04-ORG01] certainly didn't have anybody lined up at the beginning. I think during the course of the construction they [BLD04-ORG01] were, obviously, talking pretty seriously, trying to market it. I think, as a result, they [BLD04-ORG01] had someone lined up. They [BLD04-ORG01] were on the verge of getting in someone almost immediately it was completed.

But that fell through and subsequently it did stand empty for probably over a year.

BLD04-ORG03-INT01: How much experience of the building process did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG03-REP01: Well, they had quite a high . . . they had a lot of experience. It certainly wasn't the first one they'd done. I mean, obviously, the MD of BLD04-ORG02 [BLD04-ORG01-REP02], you know, who was involved, obviously runs an architectural practice [BLD04-ORG02], so he's [BLD04-ORG01-REP02] very experienced. And BLD04-ORG01-REP01 as well, I am sure he . . . I mean, he was a Southerner. I think he [BLD04-ORG01-REP01] operated from the South East really – it's where his core business was. My impression of him [BLD04-ORG01-REP01] was, I didn't know him all that well, but I am sure he was experienced.

BLD04-ORG03-INT01: How much previous experience of working with the commercial property developer [BLD04-ORG01] did your organization possess?

BLD04-ORG03-REP01: I think BLD04-ORG01-REP01 was known to the practice. I think he [BLD04-ORG01-REP01] had been, sort of . . . not a job that went ahead, but I think he'd been . . . I can't remember which one it was now, but there was another scheme in \*\*\*\*\* that he'd been toying with, and I think we were involved in that as well – doing preliminary feasibility work on that. I forget which one it was at the time, but his [BLD04-ORG01-REP01] name was known to the practice. And BLD04-ORG02 and their MD, BLD04-ORG01-REP02, are well known to the practice. I don't think we'd done all that much work with them. I mean, BLD04-ORG02 are an old established firm and BLD04-ORG03 are as well. So I think they had in the past probably done some work together. BLD04-ORG02-REP01 and I had, well, BLD04-ORG02 and BLD04-ORG03 had just completed a fairly large scheme in \*\*\*\*\*. I don't know whether BLD04-ORG02-REP01 had mentioned that to you as well? It was a medium-sized retail park, which wasn't as successful as this. I mean, the relationship between the parties was alright, but the actual development went a bit sour at the end. So we'd built up quite a good working relationship there, and that sort of continued on into BLD04.

BLD04-ORG03-INT01: So you had previous experience of working with the architectural design consultant [BLD04-ORG02] prior to the building project?

BLD04-ORG03-REP01: Oh, yes.

BLD04-ORG03-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD04-ORG02-REP01] did you possess?

BLD04-ORG03-REP01: Not previous to the medium-sized retail scheme in \*\*\*\*\*. That was the first time I'd worked with BLD04-ORG02-REP01. The first time I met BLD04-ORG02-REP01 was when I . . . I mean, I was in private practice prior to coming to BLD04-ORG03. My practice was a firm called ORGANIZATION 4C, which in the past had worked with BLD04-ORG02 as well, which was an old established firm. The practice of ORGANIZATION 4C had worked with BLD04-ORG02 in the past, not with BLD04-ORG02-REP01, but with some of the other partners. So I was aware of BLD04-ORG02. So I had worked with BLD04-ORG02, but not BLD04-ORG02-REP01 particularly. The first time I met BLD04-ORG02-REP01 was in, probably, the back end of 19##. My practice [ORGANIZATION 4C] merged with BLD04-ORG03 in the middle of 19##. And this was, more or less, one of the first major schemes that I did with BLD04-ORG03, in fact, having merged my practice with BLD04-ORG03. No, not this one, the medium-sized retail scheme in \*\*\*\*\* was one of the early ones. So that's when I first met BLD04-ORG02-REP01, round about August 19##, on the medium-sized retail scheme in \*\*\*\*\* , and that sort of went through. And we followed up with this probably around about . . . started on this probably around about 19##.

BLD04-ORG03-INT01: How did your organization become involved with the commercial property developer [BLD04-ORG01] during the building project?

BLD04-ORG03-REP01: I think it was probably through BLD04-ORG02. I think, almost certainly . . . I am pretty sure the approach to us came from BLD04-ORG02, rather than the client [BLD04-ORG01].

BLD04-ORG03-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD04-ORG03-REP01: Well, we acted as quantity surveyors [construction cost consultants]. BLD04-ORG02 was the lead consultant. As architects [architectural design consultants] they took the traditional role, if you like, of lead consultant. We performed all the folds . . . provided a full quantity surveying [construction cost consultant] service. We did initial feasibility and estimates. To establish the viability of the scheme. We advised on cost, as the design developed. We negotiated a . . . well, it was a contract amount, but it wasn't a firm contract amount inasmuch as we entered into the contract before all the detail had been done. It was a . . . the contract was based on an agreed contract amount in which we negotiated the preliminaries, profit and overhead elements of the contract. But all of the work packages were just provisional sums and we dealt with it by measuring and agreeing and negotiating the work packages with the contractor [BLD04-ORG05] as the work proceeded, because the work started before all of the detailed design had been done. So we, having done the feasibility, we produced a cost plan, if you like, and monitored that cost plan as the work proceeded by measuring work packages and agreeing the actual cost with the contractor [BLD04-ORG05]. But we had agreed previously to the contract starting, the preliminaries, which were an agreed amount - the site overheads and the profit and overheads. The preliminary elements of the contract were all agreed.

BLD04-ORG03-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD04-ORG03-REP01: Well, I was the partner in charge of the project. I actually did, personally, all the feasibility estimates and did all the negotiation with the contractor - BLD04-ORG05 - and prepared all of the contract documents. So, you know, I was totally, really, the only one involved right up to getting to a contract situation. Post-contract, I had someone helping me to do some of the basic, sort of, work, such as the valuations. And well, obviously, the detailed measurement of the work packages, people in this office did. I didn't do all that. So all the work packages that went out for pricing by BLD04-ORG05 during the course of the contract were done by other people. I obviously appraised the results of that and monitored the cost against the cost plan. Throughout the contract I attended all site meetings and did, well, the cost monitoring, basically. Apart from the actual detailed measurement of the packages. I was totally involved with the cost monitoring and making sure that we, you know,

kept to the cost plan and arrived at a satisfactory cost result at the end.

BLD04-ORG03-INT01: How would you describe the building project?

BLD04-ORG03-REP01: Do you mean the procurement method or what?

BLD04-ORG03-INT01: The building itself.

BLD04-ORG03-REP01: Well, it's an office development, pure and simple. It was all offices. There was car parking. It's a commercial office development, in a concise description. Commercial office development in a city centre location, which involved retention of an important listed façade.

BLD04-ORG03-INT01: Were there any unusual or unforeseen site difficulties?

BLD04-ORG03-REP01: Well, the retention of the façade – it's always tricky. I think that was the only major thing. I mean, other than that, it was the only façade that was retained. So, you know, shoring up and holding the façade was a problem. There was a slight problem, I think, in the ground at one corner – nothing tremendous in the ground. There were some very large, extensive retaining walls at the back. The ground did slope up quite a bit from the street up to the lane at the back, and there were some very elaborate and costly and difficult levels at the back. There was very little space on the site. The whole of the site was filled with building, and the contractor [BLD04-ORG05], in fact, had made arrangements, because some of the buildings higher up the street were vacant and awaiting development, which, in fact, we are involved with now doing. The contractor [BLD04-ORG05] made arrangements with the owner of the empty buildings up the street to use it as his site establishment – off-site office – which was just two or three doors up the street. So it was a very tight site for space and, you know, that made things, you know, a bit difficult for the contractor [BLD04-ORG05] to operate. But nothing more than you perhaps expect on a city centre site. The levels weren't easy at the back. It was quite difficult.

BLD04-ORG03-INT01: What was the original budget for the building project?

BLD04-ORG03-REP01: Well, I think it was about £3 million. The actual contract amount was £2.75 million. Anyway, it hovered about the £2.6 – £2.7 million figure.

BLD04-ORG03-INT01: What was the amount of the final account?

BLD04-ORG03-REP01: It was slightly higher, I think. I haven't got that with me, unfortunately. But it was about . . . it probably went up to . . . I think it was still slightly under £3 million, something like £2.9 million. But it didn't go up dramatically. I mean, there were certain things they [BLD04-ORG01] agreed to, I think . . . . I mean, the original contract amount didn't have raised access floors, which they agreed to at a . . . what they call an extra cost. But that was a specific client [BLD04-ORG01] agreed extra. I think having, you know . . . when they [BLD04-ORG01] were talking specifically to certain occupiers, they decide that they would definitely want raised access floors. So they [BLD04-ORG01] agreed to pay extra for that. So they [BLD04-ORG01] were happy, I think, with the outcome of the cost that was achieved, really. It didn't change radically, and they [BLD04-ORG01] were happy to accept the extra cost that was involved.

BLD04-ORG03-INT01: What date did construction work start on site?

BLD04-ORG03-REP01: I can find it, but I haven't actually got that here, I don't think. It must have been about 19##.

BLD04-ORG03-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] did your organization possess?

BLD04-ORG03-REP01: Well, as I say, I think they [BLD04-ORG03] hadn't done a lot, I think, before the medium-sized retail scheme in \*\*\*\*\*. I think they'd [BLD04-ORG03] been trying to get involved more with BLD04-ORG02. Obviously, they'd [BLD04-ORG03] been in contact with BLD04-ORG02. But I don't think they'd [BLD04-ORG03] done a great deal in the immediate past, before the medium-sized retail scheme in \*\*\*\*\* in 19##. We've done a few schemes since then, apart from the medium-sized retail scheme in \*\*\*\*\* and this one. There have been one or two other schemes we have done with BLD04-ORG02.

BLD04-ORG03-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] did you possess?

BLD04-ORG03-REP01: Well, as I say, I had worked with BLD04-ORG02 in the past when I was in private practice. My old firm, ORGANIZATION 4C, had done some schemes with BLD04-ORG02 in the past.

BLD04-ORG03-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD04-ORG02-REP01] did you possess?

BLD04-ORG03-REP01: I had worked with him before on the medium-sized retail scheme in \*\*\*\*\*, but not before that. So I had done the medium-sized retail scheme in \*\*\*\*\* before this one. This wasn't the first scheme.

BLD04-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD04-ORG04] did your organization possess?

BLD04-ORG03-REP01: Again, I am not sure, to be honest. I have only been part of BLD04-ORG03 since 19##. Now, there have been some jobs, not a great deal, I think. I think they're [BLD04-ORG04] not the structural engineers [structural engineering design consultants] we perhaps normally work with. But it's certainly not the only job we've done with BLD04-ORG04 now. I think we've worked with them before on a few occasions.

BLD04-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD04-ORG04] did you possess?

BLD04-ORG03-REP01: I hadn't actually, no. I had never worked with BLD04-ORG04 before. Oh, yes, BLD04-ORG04 changed their name; they used to be something else. So, yes, I did when I was with ORGANIZATION 4C, I did work with ORGANIZATION 4D. But I hadn't worked with them in their new format.

BLD04-ORG03-INT01: How much previous experience of working with the representative of the structural engineering design consultant [BLD04-ORG04-REP01] did you possess?

BLD04-ORG03-REP01: BLD04-ORG04-REP01? I knew the name, but I hadn't actually worked with him, no.

BLD04-ORG03-INT01: How much previous experience of working with the building services engineering design consultant [BLD04-ORG04] did your organization possess?

BLD04-ORG03-REP01: Yes, I think they [BLD04-ORG03] probably had. I think they [BLD04-ORG03] probably had as well, but I can't be specific about which jobs. I think they knew them. I know one of my partners is quite friendly with BLD04-ORG04-REP02, and I knew BLD04-ORG04-REP02 as



well, before I came to BLD04-ORG03. I can't say I'd specifically worked with him.

BLD04-ORG03-INT01: How much previous experience of working with the building services engineering design consultant [BLD04-ORG04] did you possess?

BLD04-ORG03-REP01: Yes, I had, to a fairly limited extent. I had come across them, yes.

BLD04-ORG03-INT01: How much previous experience of working with the representative of the building services engineering design consultant [BLD04-ORG04-REP02] did you possess?

BLD04-ORG03-REP01: Well, as I say, I did know BLD04-ORG02-REP02, but I don't think that I'd specifically worked with him.

BLD04-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did your organization possess?

BLD04-ORG03-REP01: Yes, BLD04-ORG03 has worked with BLD04-ORG05 fairly regularly in the past.

BLD04-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did you possess?

BLD04-ORG03-REP01: Yes, I had previously worked with BLD04-ORG05 on several occasions.

BLD04-ORG03-INT01: How much previous experience of working with the representative of the primary construction contractor [BLD04-ORG05-REP01] did you possess?

BLD04-ORG03-REP01: BLD04-ORG05-REP01? No, I hadn't actually met him [BLD04-ORG05-REP01] before.

BLD04-ORG03-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG03-REP01: I think the original client [ORGANIZATION 4A], I am not quite sure about what happened afterwards, I mean, I always got the impression that BLD04-ORG01-REP01 was a bit of a chancer, I think, you know, as developers [commercial property developers] perhaps are. I think he [BLD04-ORG01-REP01] took risks. So where would I put him [BLD04-ORG01-REP01]? *Not very reputable*, to be honest. I certainly would go no higher than *neither*

*reputable nor disreputable*. I wouldn't go any higher with BLD04-ORG01-REP01, I am afraid.

BLD04-ORG03-INT01: Which of the two responses would you select as being most appropriate?

BLD04-ORG03-REP01: Number 3, I would say. I mean, obviously, you know, he'd [BLD04-ORG01-REP01] done some developments . . . he was a bit flashy and I would suspect a bit . . . yes, I am not sure that he could be relied upon, totally.

BLD04-ORG03-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG03-REP01: Just on this project, quite *reputable*.

BLD04-ORG03-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: I think quite *reputable*.

BLD04-ORG03-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: I would say the same, quite *reputable*, I think.

BLD04-ORG03-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG03-REP01: They did well. They did do well. I think I would go to the top line with them. I think they provided a very good service, *very reputable*.

BLD04-ORG03-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG03-REP01: Probably . . . well, *once monthly*, I suppose. Probably when we reported valuations and cost reports. Probably not much more than that. Certainly, not as much as *several times monthly*, you know, once or twice monthly. So it's somewhere between 2 and 3.

BLD04-ORG03-INT01: Which of the two responses would you select as being most appropriate?

BLD04-ORG03-REP01: Well, over the whole course of the contract, probably 2. That is from, you know, doing the initial feasibility. Obviously, there is slightly more contact, possibly, during

the construction phase when you are reporting cost, but initially it went well – several months without any contact at all. It lay dormant a little bit. So probably over the whole programme, 2.

BLD04-ORG03-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG03-REP01: Well, again, *several times weekly* – 5, I would think.

BLD04-ORG03-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: Probably no more than *several times monthly* – 3.

BLD04-ORG03-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: I would say the same, 3.

BLD04-ORG03-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG03-REP01: Again, probably no more than *several times weekly*.

BLD04-ORG03-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG03-REP01: *Rarely*, really, between our responsibilities and what the client [BLD04-ORG01] wanted, really.

BLD04-ORG03-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG03-REP01: Well, there's probably always something that . . . I mean, just by the very nature of our job, they're going to, perhaps, want to put something in and we're going to say: "Hey, you can't afford this." So would you regard that as a conflict, would you? Well, I suppose . . . I suppose *quite often*, because we were closely monitoring this. So, you know, *quite often* we might have said: "You know, you perhaps may need to rethink on this." I mean, there was no conflict, but just the process of monitoring the scheme, really.

BLD04-ORG03-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: Probably *rarely*, really. I would think it was probably *rarely*.

BLD04-ORG03-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: I think, perhaps, more often, really. It was probably a little higher than the structural engineer [BLD04-ORG04], so perhaps 3. I mean, there was time when we said: "You know, you've got to have another look at this. We can't afford this."

BLD04-ORG03-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG03-REP01: I mean, just disagreements over cost. Would that fall into this sort of thing or not?

BLD04-ORG03-INT01: That would depend upon the extent to which you thought it conflicted with your professional responsibilities or priorities.

BLD04-ORG03-REP01: I would say . . . probably . . . again, *quite often*, I think is the right answer.

BLD04-ORG03-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG03-REP01: I don't think ever, no. So, *never*.

BLD04-ORG03-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG03-REP01: There was *never* any dispute or disagreement, really, no.

BLD04-ORG03-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: No, *never*.

BLD04-ORG03-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG03-REP01: The same, *never*.

BLD04-ORG03-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG03-REP01: No, at the end it went through very smoothly. There was no dispute or disagreement at the end, either – agreeing the account, really. It went off quite smoothly.

BLD04-ORG03-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD04-ORG03-REP01: Well, BLD04-ORG03 can provide what is described as a full quantity surveying [construction cost consultant] service. We also provide project management services. I mean, it is a separate company actually, but we work very closely. It is almost one and the same, although we are two separate bodies: BLD04-ORG03, which is a partnership, and BLD04-ORG03 Project Management, which is a wholly owned subsidiary of BLD04-ORG03, having separate accounts, etc. But we do provide project management services, building surveying, facilities management and health and safety services: CDM planning supervisors. So, you know, I think we have expanded from, if you like, the traditional pure quantity surveying [construction cost consultant] services to incorporate all of these additional things that clients now require, to provide a one-stop-shop, you know, from inception to completion and beyond.

BLD04-ORG03-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD04-ORG03-REP01: Well, we have a very wide-ranging portfolio of work. I mean, probably the biggest single sector is health. We do commercial developments. We do housing and housing association work. We do some industrial factories. We do some, sort of, public utilities work, for water companies. We arrange services for very large hospitals. So, you know, £20 – £30 million jobs, down to hundred thousand pound, sort of, village hall extensions or that sort of thing, you know. So, you know, we have quite a number of private clients as well. We do a variety of things. We cover pretty much the full spectrum, I would think. We don't do a lot of civils work. We have done one or two water treatment plants for water companies, which I think had offices with them as well. Not a lot of civils work, no, or petrochemical work or anything like that, no. Well, we have also done airport terminal buildings, but that's a building as opposed to runways and that sort of thing. I mean, we haven't done very much of that. I'd like to get into that sort of thing.

BLD04-ORG03-INT01: How many years has your organization been established?

BLD04-ORG03-REP01: We were established in 19##, it was our 75th anniversary last year.

## 23.3 INTERVIEW TRANSCRIPT BLD04-TRAN03

Organization Role: Structural Engineering Design Consultant

Organization Code: BLD04-ORG04

Respondent Role: Boundary Representative for BLD04-ORG04

Respondent Code: BLD04-ORG04-REP01

Interviewer Code: BLD04-ORG04-INT01

BLD04-ORG04-INT01: Do you think the inter-organizational relationships diagram [see Figure 14.10 on page 327] for the new-build construction sub-process is correct?

BLD04-ORG04-REP01: Yes, it's a reasonable interpretation. But within this organization we usually appoint one person to be in charge for one job. In this case, it was primarily structures [structural engineering design] and the M & E [building services engineering design] came in under that.

BLD04-ORG04-INT01: To what extent can this approach cause problems for the other design and professional consultants and the primary and secondary construction contractors?

BLD04-ORG04-REP01: There was only one point-of-contact with the client [BLD04-ORG01], as far as this office is concerned, and that came through me. But, obviously, there were other points-of-contact directly with the architect [BLD04-ORG02] or the quantity surveyor [BLD04-ORG03].

BLD04-ORG04-INT01: Who was the client organization?

BLD04-ORG04-REP01: The client organization was BLD04-ORG01.

BLD04-ORG04-INT01: What type of organization was the client [BLD04-ORG01]?

BLD04-ORG04-REP01: BLD04 had a chequered career. It started off with a developer [commercial property developer] who went bust, and the scheme was then taken over by the banks that held the mortgage on the properties. I am aware of what type of organization was set up, but basically, BLD04-ORG01 was set up, and the directors of that were BLD04-ORG01-REP02 – the chairman of BLD04-ORG02 – the original developer [BLD04-ORG01-REP01], and I believe a representative from the bank, although I am not certain of that. But as far as we were concerned, the client

[commercial property developer] was BLD04-ORG01, and that had a face in BLD04-ORG01-REP02. However, we were actually paid our fees through the offices of the original developer [ORGANIZATION 4A].

BLD04-ORG04-INT01: Why did the commercial property developer [BLD04-ORG01] decide to commission the building project?

BLD04-ORG04-REP01: The original developer [ORGANIZATION 4A], of course, bought the property in the mid '80s – the time when there was increasing demand for high quality accommodation in the area – and he [BLD04-ORG01-REP01] was caught by a downturn in the market. When he [BLD04-ORG01-REP01] put the company [ORGANIZATION 4A] into receivership, that then went to, obviously, the mortgage lender – the banks. Then after a lot of playing around, they [BLD04-ORG01] decided that they're best course of action was to build the scheme out and sell it on. And that's my understanding of what happened.

BLD04-ORG04-INT01: How much previous experience of the building process did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG04-REP01: I never met a representative of the banks, but I am not sure whether they had a clear understanding of the procurement role. But they had used BLD04-ORG05 on some similar work in \*\*\*\*\*. BLD04-ORG05 had performed very well. So they set up the procurement role in order to bring BLD04-ORG05 in at an early stage and to negotiate the tender price.

BLD04-ORG04-INT01: How much previous experience of working with the commercial property developer [BLD04-ORG01] did your organization possess?

BLD04-ORG04-REP01: We'd done one other. We'd been involved with the original developer [ORGANIZATION 4A] who put the company into receivership on one other job. That was also a job that didn't go ahead – it was put into receivership. We had not worked with the bank before.

BLD04-ORG04-INT01: How much previous experience of working with the commercial property developer [BLD04-ORG01] did you possess?

BLD04-ORG04-REP01: I am not too sure what you mean by that question, because of the difficulties associated with who was the client [commercial property developer]? Are you referring to

the original developer [ORGANIZATION 4A], who went into receivership, or are you referring to the banks?

BLD04-ORG04-INT01: Both.

BLD04-ORG04-REP01: Well, I think that is answered in the previous remarks. I had previous experience of the developer [ORGANIZATION 4A] who went into receivership. I had no experience of working with the banks. They purely came in and we were appointed because we were involved on the previous scheme.

BLD04-ORG04-INT01: How did your organization become involved with the commercial property developer [BLD04-ORG01] during the building project?

BLD04-ORG04-REP01: BLD04-ORG02 brought us in.

BLD04-ORG04-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD04-ORG04-REP01: We, as you noted in this diagram [pointing to the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.10 on page 327)], we are the two engineering disciplines: the main one was the structural engineering services [structural engineering design consultant] and the building services engineering [building services engineering design consultant]. The building services engineering wasn't a full design service, it was purely a specification. The structural work was the full design of the structure – simply that.

BLD04-ORG04-INT01: To what extent is it common practice for an engineering design consultant to only provide design specification services on a JCT 80 form of contract?

BLD04-ORG04-REP01: It is very common, particularly for the building services [building services engineering design], yes. A lot of the building services works [building services engineering design] are, in effect, contractor [secondary construction contractor] designed. And the client thinks that . . . feels that he's saving money by maybe getting an outline specification from the consultant engineer [building services engineering design consultant]. I mean, he [client] doesn't seem to appreciate that he has to pay for the design later down the chain, as it were. My own personal feelings are that the designs should be fully completed before the contractors [secondary construction contractors] tender for the work. This day and age, quite a



few clients tend not to agree with that. They tend to go more for D & B and feel that they're saving down the line. But I don't think that's true. In D & B they may be getting the job quicker, but for the most part that's because the design time has just been completely squeezed out of the system.

BLD04-ORG04-INT01: To what extent do you experience any problems when checking the secondary construction contractor's detailed designs?

BLD04-ORG04-REP01: We are drifting away from what you came here to talk to me about, because if you want to talk about services [building services engineering design], you need to talk to BLD04-ORG04-REP02. But to be quite frank, it depends on what we get paid. The service would be geared to whatever we get paid, and we would make sure that there wasn't any . . . or we'd make sure that the client is fully aware of what services we are offering. If a client is willing to pay for a full check on the subcontractor's [secondary construction contractor's] works, both in terms of design and supervision, we will do that. But that's probably very unusual.

BLD04-ORG04-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD04-ORG04-REP01: I was the principal point of contact with the client [commercial property developer] to . . . see to . . . well, to take a more detailed approach on the structural engineering works [structural engineering design]. The principal point of contact with the client [commercial property developer] would also take into account the building services [building services engineering design], but I was not responsible for the details of the building services [building services engineering design] with the other consultants [architectural design and construction cost consultants] and contractors [primary and secondary construction contractors].

BLD04-ORG04-INT01: How would you describe the building project?

BLD04-ORG04-REP01: I am not too sure exactly what you want as an answer to that. Do you want a broad answer, or are you purely asking for the structural engineering [structural engineering design] content?

BLD04-ORG04-INT01: Both.

BLD04-ORG04-REP01: It's a completely new building behind the retained façade, which was a \*\*\*\*\* building in \*\*\*\*\*. It's a listed building. The building behind it was demolished as part of the works. There were some difficulties with the foundations that . . . because of restrictions placed on us, we hadn't been able to carry out a full site investigation, and there was the usual thing of making changes within the progress of the works, which was undesirable. As I say, that really was a restriction that was placed upon us, because we were not able to gain access to the building at an earlier stage to actually carry out a full site investigation. And that was part of the way that this particular job was organized. However, the foundations did go in. The building was partly piled. The piled bit was at the back where it was a half basement. We developed a structure that was based on a structural steelwork frame with a hollow rib-type of floor – composite decking – which fitted in a complementary manner with the steel beams. In our current day and age, this is certainly a very economic form of construction, if not the most economic form. It went in quite successfully. Once we got out of the foundations there were no real problems with the structure itself.

BLD04-ORG04-INT01: To what extent did you have to re-evaluate the structural engineering design once work on site had commenced?

BLD04-ORG04-REP01: Certain things, which were done on site, such as specialized concrete, was put in to take the foundations down to a lower level at the front. But that had to be done on a day-to-day basis. We had to respond to the contractor's [primary construction contractor's] requirements on that in order to instruct them on what to do. The other thing which, I guess, happened during the works, which did have an effect more on this job than on others, was because of the negotiated terms of the deal with BLD04-ORG05. It's fair to say that we acted more as a team with the contractor [BLD04-ORG05] rather than to have two sides to the fence. We did respond pretty quickly to BLD04-ORG05's request for information. We're not far down the road from them, which has benefits and dis-benefits in some way.

BLD04-ORG04-INT01: Who was the contract administrator?

BLD04-ORG04-REP01: BLD04-ORG02 acted as the contract administrator.

BLD04-ORG04-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific structural engineering design element?

BLD04-ORG04-REP01: There was no part of the structure which was contractor [secondary construction contractor] design. However, there were temporary works which were contractor [secondary construction contractor] designed. What we had here was demolition of the building behind an existing façade – the façade had to be retained. There were extensive temporary works which had to go in for that. They were contractor [secondary construction contractor] designed and approved by ourselves.

BLD04-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] did your organization possess?

BLD04-ORG04-REP01: Very extensive. BLD04-ORG04 has had an office here, of sorts, for perhaps thirty years. But, basically, as a design office, it's been here for twenty-two/twenty-three years. It was, basically, set up, as I said . . . they had an office before that, but it was a very small thing, as a follow on from the early days in the North-East. However, it was basically set up as a design office for our work with the \*\*\*\*\*. Now we brought in BLD04-ORG02 one of those jobs. We were the consultant engineer [structural and building services engineering design consultant] for certain \*\*\*\*\* and \*\*\*\*\* , and we brought in BLD04-ORG02 as our executive. We appointed BLD04-ORG02 as our executive architect [architectural design consultant] to carry out the architectural detailing of the \*\*\*\*\*. So we've had involvement from the start, really, with BLD04-ORG02, and it's carried on ever since.

BLD04-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] did you possess?

BLD04-ORG04-REP01: As I say, I have had extensive experience of working with BLD04-ORG02.

BLD04-ORG04-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD04-ORG02-REP01] did you possess?

BLD04-ORG04-REP01: I have worked many times with BLD04-ORG02-REP01 on different jobs. I worked with BLD04-ORG02-REP01 since the days when he started with BLD04-ORG02.

BLD04-ORG04-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did your organization possess?

- BLD04-ORG04-REP01: Yes, both as a main contractor [primary construction contractor] and ourselves, and as a design and build contractor [primary construction contractor] and as their designer [structural engineering design consultant].
- BLD04-ORG04-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did you possess?
- BLD04-ORG04-REP01: Yes, in both of these capacities.
- BLD04-ORG04-INT01: How much previous experience of working with the representative of the primary construction contractor [BLD04-ORG05-REP01] did you possess?
- BLD04-ORG04-REP01: None.
- BLD04-ORG04-INT01: To what extent do different forms of procurement, e.g., traditional contracting and design and build contracting, create any problems in your relationship with the primary construction contractor [BLD04-ORG05]?
- BLD04-ORG04-REP01: Yes, it can create problems. I mean it doesn't make any difference in terms of the guys on the drawing boards doing drawings or doing calculations for the structure itself, but it's to do with the . . . we can have . . . there must be a difference, insofar as a traditional arrangement we would be telling BLD04-ORG05 and we would have some control over what BLD04-ORG05 did. In a D & B it's the other way round, we have no control of BLD04-ORG05 whatsoever – they tell us what to do and can make demands on us which may well be in excess of what we would traditionally have to do on a traditional role.
- BLD04-ORG04-INT01: How much previous experience of working with the construction cost consultant [BLD04-ORG03] did your organization possess?
- BLD04-ORG04-REP01: Yes, but not a large amount.
- BLD04-ORG04-INT01: How much previous experience of working with the construction cost consultant [BLD04-ORG03] did you possess?
- BLD04-ORG04-REP01: I had had some, but it was a long time ago.
- BLD04-ORG04-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD04-ORG03-REP01] did you possess?

- BLD04-ORG04-REP01: No, I hadn't met him before.
- BLD04-ORG04-INT01: How much previous experience of working with the in-house building services engineering design department [BLD04-ORG04] did your structural engineering design department possess?
- BLD04-ORG04-REP01: We've had extensive experience of working with our in-house services division [BLD04-ORG04] on many different projects.
- BLD04-ORG04-INT01: How much previous experience of working with the in-house building services engineering design department [BLD04-ORG04] did you possess?
- BLD04-ORG04-REP01: As I say, I've had extensive experience of working with our in-house building services division [BLD04-ORG04].
- BLD04-ORG04-INT01: How much previous experience of working with the representative of the in-house building services engineering design department [BLD04-ORG04-REP02] did you possess?
- BLD04-ORG04-REP01: I've worked with BLD04-ORG04-REP02 many times.
- BLD04-ORG04-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?
- BLD04-ORG04-REP01: If you're talking about the original developer [ORGANIZATION 4A] not very high. I'd put it at no more than 2. But the final developer [BLD04-ORG01], we had no problems whatsoever, so I would rank that as 5.
- BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?
- BLD04-ORG04-REP01: Well, you know, I've always held BLD04-ORG02 in high regard and that continued after this project. So I would rank that as a 5.
- BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?
- BLD04-ORG04-REP01: Purely in relation to this contract . . . purely in relation to this contract, I would rank BLD04-ORG05 as a 5. I am not saying I would subsequently take that view. I thought they did a very good job on this.
- BLD04-ORG04-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG04-REP01: I would definitely recommend BLD04-ORG03. I've put a lot of 5s down here. I'd put BLD04-ORG03 down as a 5. I thought they did an excellent job. They controlled this job from start to finish with an effective cost plan, remembering that there weren't bills of quantities; it was purely . . . purely a broad-brush approach taken to quantities. An agreement was reached with BLD04-ORG05 at an early stage on the total cost and BLD04-ORG03 controlled it from start to finish, such that the out-turn cost was within a very small percentage of the original cost which was agreed. I thought they did an excellent job.

BLD04-ORG04-INT01: The in-house building services engineer design department [BLD04-ORG04]?

BLD04-ORG04-REP01: Well, obviously, and once again, 5.

BLD04-ORG04-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the construction cost consultant [BLD04-ORG03]?

BLD04-ORG04-REP01: My involvement on this job wasn't a day-to-day one. I did have a project structural engineer working for me on this who did the majority of the work. I can't give a clear answer to that one. However, I would imagine from managerial experience and knowledge of this project, during the earlier stages it was *once weekly*. And during the later stages it would be minimal, so *less than once monthly*.

BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP01: BLD04-ORG02, again, during the time when the bulk of the design was being carried out it may well be on a *once daily* basis that there would be somebody within this organization that would have contact. In terms of who has that contact is quite an interesting thing. There are some organizations that would purely limit that to the project manager. I don't believe that's the most effective way of doing it and certainly in a case like this, although it has to be controlled, that central person has to know what's going on. There is no harm in letting technicians talk to technicians across at the same level. If you try to limit all communications to one person within an organization, I think you're just going to get bogged down completely. So as a whole, during the early parts of the design period, I

would think it would not be item 7. I would think you'd probably be looking at item 5. Item 5 would be when the bulk of the design was going on. Subsequently, that would reduce to item 4, and during the construction of the works, or the later parts of the construction when the structure would be up and it would be merely coming back to us for bits and pieces, it would be down to item 2.

BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG04-REP01: One of the things about this particular job, as I said earlier, is the fact that it was just a couple of hundred yards up the road. So again, certainly in the more difficult parts of the project, such as the foundations, it was probably item 6. But again that would taper off.

BLD04-ORG04-INT01: The commercial property developer [BLD04-ORG01]?

BLD04-ORG04-REP01: No. Subsequently we have, but not during the contract. They would merely have been given drawings during the contract, but I don't even think they got those, to be quite honest. You have to bear in mind that this was a peculiar arrangement in that BLD04-ORG02's chairman, BLD04-ORG01-REP02, was part of the client organization [BLD04-ORG01]. BLD04-ORG01-REP02 did a lot of work to get this scheme off the ground when the developer [ORGANIZATION 4A] went bankrupt. And the only reason that scheme went ahead, I reckon, is because of all the work that BLD04-ORG01-REP02 did.

BLD04-ORG04-INT01: The in-house building services engineering design department [BLD04-ORG04]?

BLD04-ORG04-REP01: That is a difficult question to answer. We talk to each other quite a lot in the office about different things. But during the course of the project, and because we didn't have much of an interface, I would say item 4.

BLD04-ORG04-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the construction cost consultant [BLD04-ORG03]?

BLD04-ORG04-REP01: I think it's fair to say that the conflict that we had with BLD04-ORG03 would be one of time - of actually supplying them with the information that they required within the timescale that they work. I would say it was probably 2.

BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP01: We had no conflict other than, again, time. The point that you're driving at is that this is part of a large team and no single member of that can function properly without the other members performing correctly, and that is basically the co-ordination of the information that has to be transmitted between the various parties. And that has to be co-ordinated and done at the right time – everybody has to receive that information as an input to it. I cannot recall anything which would be abnormal in that respect in relation to BLD04-ORG02. So I would suggest that it would be 2. Although, on a day-to-day basis, I am quite sure there would be: "Where's this information?"

BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG04-REP01: BLD04-ORG05 had set up a system of 'Request for Information', and we made every attempt to try and provide that information at their own time. But, again, this was a job where little design had been done. It was akin, in that respect, to D & B – little design had been done before they started on site. So, obviously, there were problems getting that information to BLD04-ORG05 at the right time. As I said, there was a proper system set up to request information, and we made every attempt to meet that. I would say it was item 3.

BLD04-ORG04-INT01: The in-house building services engineering design department [BLD04-ORG04]?

BLD04-ORG04-REP01: That's a difficult question to answer, because of the nature of working with somebody within your own organization and the difference and divergence of our design roles. But I would suggest it was item 1.

BLD04-ORG04-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the construction cost consultant [BLD04-ORG03]?

BLD04-ORG04-REP01: I am not aware that we had any disagreements or disputes with BLD04-ORG03 in that respect. So it would be item 1.

BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP01: Item 1.



BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG04-REP01: Item 1.

BLD04-ORG04-INT01: The in-house building services engineering design department [BLD04-ORG04]?

BLD04-ORG04-REP01: Item 1.

BLD04-ORG04-INT01: The commercial property developer [BLD04-ORG01]?

BLD04-ORG04-REP01: That is difficult to answer. I am not aware of any disagreements or disputes. So it would be item 1.

## 23.4 INTERVIEW TRANSCRIPT BLD04-TRAN04

Organization Role: Building Services Engineering Design Consultant

Organization Code: BLD04-ORG04

Respondent Role: Boundary Representative for BLD04-ORG04

Respondent Code: BLD04-ORG04-REP02

Interviewer Code: BLD04-ORG04-INT01

BLD04-ORG04-INT01: Who was the client organization?

BLD04-ORG04-REP02: Well, it was the developer/architect [BLD04-ORG01/BLD04-ORG02], because the architect [architectural design consultant] had . . . one of the partners in the architectural practice [BLD04-ORG01-REP02] was on the board or part of the development company [BLD04-ORG01] as well. I think they [BLD04-ORG01 and BLD04-ORG02] tried to ignore this, and I think they probably succeeded. Well, we all did . . . probably succeeded most of the time, but there was just the occasional . . . maybe it was just in people's minds that it was different, you know, it was a different situation.

BLD04-ORG04-INT01: To what extent do you think the overlapping of these roles and responsibilities created any problems during your relationship with the architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP02: I think we were all, probably, suspicious . . . a little bit suspicious or uneasy about the situation, or more aware of it, because we'd had previous attempts to get other schemes off the ground and the original developer [ORGANIZATION 4A] – the people who were the developer [commercial property developer] at that time – had, sort of, failed. And this was a new company formed, as my understanding, anyway, out of the original development company that had gone . . . you know, gone to the wall.

BLD04-ORG04-INT01: Was the MD of the architectural design consultant [BLD04-ORG01-REP02] associated with the original commercial property developer [ORGANIZATION 4A] in anyway?

BLD04-ORG04-REP02: No. I don't think he was involved with him [BLD04-ORG01-REP01] in the original company

[ORGANIZATION 4A]. But then they formed this new company [BLD04-ORG01] to do this scheme.

BLD04-ORG04-INT01: Was the architectural design consultant [BLD04-ORG02] associated with the original commercial property developer [BLD04-ORG01] in anyway?

BLD04-ORG04-REP02: Yes. But in fairness we were all . . . a little bit . . . because we all spent a lot of money on, you know, one or two other schemes that came to nothing and, you know, we didn't get any fees. So we were probably more aware of the overall situation regarding the client [BLD04-ORG01] on this one than maybe we should have been.

BLD04-ORG04-INT01: To what extent do you think this situation created any problems during your relationship with the architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP02: No, it didn't cause any strains in that respect. It was . . . I think we were all . . . not uneasy, but there was a little bit of . . . wonderment there as to, well, is everything going to work out as it should on this one – bearing in mind the original? But I don't think . . . once this scheme got underway, I think it went very well.

BLD04-ORG04-INT01: To what extent do you think the overlapping of these roles and responsibilities created any benefits during the course of undertaking the building project?

BLD04-ORG04-REP02: No, I don't think it did. I don't think it had any bearing on our direct relationship with BLD04-ORG02-REP01. And I think from his point-of-view – a catch-22 situation – in some instances it probably helped him, because he had direct access to the client [BLD04-ORG01]. But that can work in two ways. Sometimes you can be too near the client – too convenient for the client – who will keep coming to you to talk about things.

BLD04-ORG04-INT01: To what extent did you have to contact the commercial property developer [BLD04-ORG01] directly?

BLD04-ORG04-REP02: No, we always did it through the architect [BLD04-ORG02]. I think that would be our approach. Certainly, on the building services [building services engineering design] side, we would recognize that there has to be a team leader, and I personally would say that the architectural design consultant [BLD04-ORG02-REP01] is the one who should play that role.

- BLD04-ORG04-INT01: Why did the commercial property developer [BLD04-ORG01] decide to commission the building project?
- BLD04-ORG04-REP02: One assumes that it was a pure development business approach – that they saw the opportunity to develop that particular building. It did take them a while to get it . . . have it let. But it seems to be let now and seems to be quite a nice building.
- BLD04-ORG04-INT01: How much previous experience of the building process did the commercial property developer [BLD04-ORG01] possess?
- BLD04-ORG04-REP02: I think they had, yes. But on the earlier schemes they'd shown a somewhat wheeler-dealer-type of approach. I suppose that applies to all development-type of companies.
- BLD04-ORG04-INT01: To what extent did you feel uncomfortable about the level and quality of the commercial property developer's [BLD04-ORG01] previous experience of the building process?
- BLD04-ORG04-REP02: Not from the pure development point-of-view. I think it was all . . . any thoughts I had were just related to the finance of the situation, making sure that we would get paid for what we were doing.
- BLD04-ORG04-INT01: How much previous experience of working with the commercial property developer [BLD04-ORG01] did your organization possess?
- BLD04-ORG04-REP02: Only the scheme at the bottom of \*\*\*\* \* that we worked on that came to nothing. But apart from that, none. I did the M & E [building services engineering design] work for that scheme.
- BLD04-ORG04-INT01: How did your organization become involved with the commercial property developer [BLD04-ORG01] during the building project?
- BLD04-ORG04-REP02: I think ORGANIZATION 4E has always had a good relationship with the architects, [BLD04-ORG02]. I think that dates back to the work we have done together on the \*\*\*\*\*, and BLD04-ORG02 were employed by ORGANIZATION 4E to do architectural [architectural design] work on the \*\*\*\*\*, etc. That's my understanding, anyway. So the relationship has built up from then. I personally have previous experience of

working with BLD04-ORG02 and with the QS, BLD04-ORG03, on other schemes. So we all knew each other.

BLD04-ORG04-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD04-ORG04-REP02: Well, we were responsible for design development of the mechanical and electrical [building services engineering design] proposals and for the refining of those proposals in line with the budget that had been set for the scheme. And we did, in fact, have ideas on a better . . . what you might call a better mechanical and electrical services [building services engineering design] approach, but we had to refine those ideas to suit the budget that was available. There was always a question of whether the client [BLD04-ORG01] wanted the building to be air-conditioned or not. And I think he [BLD04-ORG01-REP01] did. But he [BLD04-ORG01-REP01] didn't want to necessarily go over his budget in affording it. So, in the end, the building is not air-conditioned, it's just ventilated. Subsequently, people have come along wanting to put in some cooling. So it would have been a good thing in the first place, but the budget dictated which way we should go.

BLD04-ORG04-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD04-ORG04-REP02: Well, we were responsible for the mechanical and electrical designs [building services engineering design] in terms of the functions of the systems and the provision of all the necessary commissioning information from our design calculations to the contractor [secondary construction contractor], so that he could set the installations to work and commission them. I was the project leader for all of this mechanical and electrical [building services engineering design] work.

BLD04-ORG04-INT01: How would you describe the building project?

BLD04-ORG04-REP02: Well, it was a typical office-type development where the design team were striving for a high-quality office and servicing solution. And I think we probably achieved that 75% of the way. But it was designed as an open-plan approach, with what people would say, you know, are modern, hi-tech approaches to servicing the offices by using . . . I think we had raised floors with distributions systems under the floors so that you retain the flexibility with the open-plan spaces. This enables you to

sectionalize them off, if you wish. Now that would have been more difficult on the mechanical services [building services engineering design] side, but we tried to introduce air in a symmetrical pattern, so that if people did want to partition spaces off, then at least they did have some supply air going into that particular zone. But it wasn't a super distribution system that would give you 100% flexibility.

BLD04-ORG04-INT01: Were there any unusual or unforeseen site difficulties?

BLD04-ORG04-REP02: I think the . . . because it was an existing building, and we were retaining the existing shape and outside façade of the building, the plant [building services equipment] spaces were . . . they were acquired, rather than being designed into the scheme. As a result, they were somewhat cramped. We had to make the best of what architecturally could be made available. So if you were starting from scratch, I think the plant [building services equipment] space provision could have been better.

BLD04-ORG04-INT01: To what extent do you think you could have achieved a higher quality rating for the mechanical and electrical building services engineering provision?

BLD04-ORG04-REP02: Well, with more . . . if we hadn't had the restriction on the financial side . . . on the budget for the project . . . I think it was . . . it was apparent to me that the building should have been provided with, you know, cooling systems, because we started to say: "Well, OK, we can't afford to have cooling, so we'll designate space where people can put cooling equipment in in the future." But again, you know, they were just being fitted in. If they had said: "Yes, go ahead, design a cooling system", we would have combined that system. We would have had a different approach to the heating and we would have had a combined heating/cooling system instead. So I think if you went into the building now, I would gamble you've got bits of, you know, like this kind of thing [pointing to a free-standing heating/cooling unit in the interview room], bits of split systems thrown in here and there and everywhere. And you start getting hideous little condensing units popping outside, sitting on windowsills, and all that kind of thing. I think that's a function of the original development and budget that prevents people from designing what they would like to and what they think is right for the building.

BLD04-ORG04-INT01: Where do you think responsibility for this problem lies?

- BLD04-ORG04-REP02: It's a fault of the client [BLD04-ORG01]. Well, fault is perhaps the wrong word, because he [BLD04-ORG01-REP01] would say: "Well, I can't afford it." But it's the client's [BLD04-ORG01] decision whether he provides the capital to provide these cooling systems or otherwise.
- BLD04-ORG04-INT01: How much previous experience of working with the construction cost consultant [BLD04-ORG03] did your organization possess?
- BLD04-ORG04-REP02: Well, I had quite a lot of experience, personally, working with them. This experience was before I worked for BLD04-ORG04. But as far as BLD04-ORG04 is concerned, I think this was perhaps one of the first. I am an ORGANIZATION 4E person, you see, so I don't know what happened before the merger. But I don't think we had previously worked with BLD04-ORG03 a lot.
- BLD04-ORG04-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD04-ORG03-REP01] did you possess?
- BLD04-ORG04-REP02: With BLD04-ORG03-REP01, yes. He was a partner in a smaller practice [ORGANIZATION 4C].
- BLD04-ORG04-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific mechanical or electrical engineering design element?
- BLD04-ORG04-REP02: They weren't responsible for any design, but they were responsible for converting our tender drawings – project drawings; they are called tender drawings in the agreement – into their own working drawings or installation drawings. Now that's something you can talk about forever between building services consultants [building services engineering design consultants] and other members of the team, because everybody else does proper design . . . sorry, detailed design – construction drawings. But . . . and then they were responsible for obtaining manufacturers' drawings – manufacturers' detailed drawings – to confirm dimensions, etc. For example, air handling units: when we would draw an air handling unit within the plant room, we would be assuming a) that we were going to use the one that we'd specified; and b) assuming that the dimensions that we take from catalogue information is actually going to be the final dimensions that they make it to. There's no guarantee of that. So we always specify that the contractor/subcontractor [primary construction contractor/secondary construction contractor]

have to provide manufacturers' working drawings – dimension drawings – so that we can see that there isn't going to be a problem.

BLD04-ORG04-INT01: To what extent did you experience any problems with the building services engineering design secondary construction contractors?

BLD04-ORG04-REP02: We did the . . . we did a specification for the works and we did drawings showing all of the layouts and the distribution systems, etc. So our drawings would represent a comprehensive package for him [secondary construction contractor] to price the installation. Now the standard of drawings that we prepare – on most projects and on this one – they're adequate for people to install to. And I think that's what they [secondary construction contractor] did here. But they [secondary construction contractor] would have to prepare their own bracket details and pipe fixing details for the workmen. And the ductwork installation would have been measured and drawn out again to produce shop drawings, so that people can make the ductwork – by their sub-subcontractor [tertiary construction contractor]. But from memory, we didn't have any real difficulties on this project?

BLD04-ORG04-INT01: How much previous experience of working with the building services engineering design secondary construction contractors or suppliers did your organization possess?

BLD04-ORG04-REP02: I am trying to think who they were, actually. I can't remember. I think it was ORGANIZATION 4F? Yes, we had worked with them before. I think it was a different firm doing the mechanical and a different firm doing the electrical.

BLD04-ORG04-INT01: How much previous experience of working with the building services engineering design secondary construction contractors did you possess?

BLD04-ORG04-REP02: Yes, I had worked with both firms before.

BLD04-ORG04-INT01: How much previous experience of working with the building services engineering design secondary construction contractors did the primary construction contractor [BLD04-ORG05] possess?

BLD04-ORG04-REP02: I am sure he had, yes.



BLD04-ORG04-INT01: To what extent do you think the previous relationship between the primary construction contractor [BLD04-ORG05] and the secondary construction contractors reduced the likelihood of any problems occurring?

BLD04-ORG04-REP02: There can be difficulties where services consultants [building services engineering design consultants] talk directly to services subcontractors [building services engineering design secondary construction contractors], and most main contractors [primary construction contractors] don't mind you doing that, providing you confirm what's been said and keep them informed. Other main contractors [primary construction contractors] don't like you to do it at all, because they've had experiences where things have been talked about and haven't been confirmed – so they don't know anything about it. So that's an area where there can be a little bit of . . . slippage and friction develop, if you're not careful. I don't think we had any difficulties in that respect on this project. I think we had quite a good relationship with the main contractor [primary construction contractor]. We attended his [primary construction contractor] meetings – the progress meetings, etc. – where any difficulties were raised without the subcontractors [secondary construction contractors] being there. We attended the main meetings with the main contractor [primary construction contractor]. So that was a way of making sure that, you know, things were recorded.

BLD04-ORG04-INT01: Did the commercial property developer [BLD04-ORG01] specify any of the design team members?

BLD04-ORG04-REP02: Well, I would assume that he appointed the architect [BLD04-ORG02] and the architect [BLD04-ORG02] would have recommended the rest of the team. I think this particular team was retained on this job because we had worked together, as I say, on other things that hadn't gone ahead. So . . . well, I would like to think that they didn't think twice about giving us the chance to recover some of our losses.

BLD04-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] did your organization possess?

BLD04-ORG04-REP02: Well, as I say, I think we worked with them on the local rail network, and that was a fairly big project – lots of people involved. And I think that's how the relationship between the two practices developed. And lots of our M

& E [building services engineering design] people were in contact with BLD04-ORG02 from that time.

BLD04-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] did you possess?

BLD04-ORG04-REP02: Yes, on many occasions with the previous practice [ORGANIZATION 4E], before the merger into BLD04-ORG04.

BLD04-ORG04-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD04-ORG02-REP01] did you possess?

BLD04-ORG04-REP02: No, I hadn't. I think I only met BLD04-ORG02-REP01 through this particular job.

BLD04-ORG04-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did your organization possess?

BLD04-ORG04-REP02: Well, I think we've known BLD04-ORG05 for quite a long time, through our civil-type of work that we do. So, again, we knew the main contractor [BLD04-ORG05] and we knew a lot of staff that they employ. We worked with BLD04-ORG05 on a large industrial project in \*\*\*\*\* , for example. So we knew them quite well.

BLD04-ORG04-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did you possess?

BLD04-ORG04-REP02: Yes, I had worked with them on several occasions.

BLD04-ORG04-INT01: How much previous experience of working with the representative of the primary construction contractor [BLD04-ORG05-REP01] did you possess?

BLD04-ORG04-REP02: Yes, I had worked with him before.

BLD04-ORG04-INT01: How much previous experience of working with the primary construction contractor [BLD04-ORG05] did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG04-REP02: I would guess they had, even if it's through the architectural person [BLD04-ORG01-REP02] who was on the development company.

- BLD04-ORG04-INT01: How much previous experience of working with the in-house structural engineering design department [BLD04-ORG04] did your building services engineering design department possess?
- BLD04-ORG04-REP02: We've worked with our in-house structures [structural engineering design consultant] section on many different projects.
- BLD04-ORG04-INT01: How much previous experience of working with the in-house structural engineering design department [BLD04-ORG04] did you possess?
- BLD04-ORG04-REP02: Yes, I had worked with our structures section on many different projects.
- BLD04-ORG04-INT01: How much previous experience of working with the representative of the in-house structural engineering design department [BLD04-ORG04-REP01] did you possess?
- BLD04-ORG04-REP02: I had worked with BLD04-ORG04-REP01 on several different jobs before this one.
- BLD04-ORG04-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations. First of all, the commercial property developer [BLD04-ORG01]?
- BLD04-ORG04-REP02: Well, I think because they were . . . they came together as a new, sort of, a new company formed from the original one [ORGANIZATION 4A], I would give them a 3.
- BLD04-ORG04-INT01: The construction cost consultant [BLD04-ORG03]?
- BLD04-ORG04-REP02: 4.
- BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?
- BLD04-ORG04-REP02: 4 again.
- BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?
- BLD04-ORG04-REP02: 4, I suppose.
- BLD04-ORG04-INT01: The in-house structural engineering design department [BLD04-ORG04]?
- BLD04-ORG04-REP02: Obviously 5.

BLD04-ORG04-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contracts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations. First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG04-REP02: I would say 1.

BLD04-ORG04-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG04-REP02: Well, during different stages it would vary. During the initial design stages you would be providing them with updated information to help them work out the estimated costs. When you got on site, you know, they probably only need information from you once a month to help them judge how much to pay the contractor [primary construction contractor], you know, on the progress of the works. So I would say 3, average.

BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP02: I would say 5.

BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG04-REP02: Well, using the main contractor [BLD04-ORG05] as the person who one would feed information through to the subbies [secondary construction contractors], 3.

BLD04-ORG04-INT01: The in-house structural engineering design department [BLD04-ORG04]?

BLD04-ORG04-REP02: I would say 3.

BLD04-ORG04-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG04-REP02: Well, I would say it was a one-off, so I would say it was 2.

BLD04-ORG04-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG04-REP02: 1.

BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP02: 2, probably.

BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG04-REP02: I don't think that would be *never*. Probably 2, again.

BLD04-ORG04-INT01: The in-house structural engineering design department [BLD04-ORG04]?

BLD04-ORG04-REP02: *I*.

BLD04-ORG04-INT01: Using Scale C, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG04-REP02: Well, I don't think we had any disputes at all with the client [BLD04-ORG01]. Never, *I*.

BLD04-ORG04-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG04-REP02: *I*, again.

BLD04-ORG04-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG04-REP02: Well, 2 probably.

BLD04-ORG04-INT01: The primary construction contractor [BLD04-ORG05]?

BLD04-ORG04-REP02: 2, again.

BLD04-ORG04-INT01: The in-house structural engineering design department [BLD04-ORG04]?

BLD04-ORG04-REP02: *I*.

BLD04-ORG04-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD04-ORG04-REP02: Well, the simplest way is to use the ACE agreement document. In the back of that there's a list of all building services that you can provide for the client. It's in there because when you formalize an agreement with the client, you're supposed to line or tick off which of these services you are providing. It's quite comprehensive and it covers all of the communications, basic electrical installations, lighting, power, lifts, and on the mechanical side, likewise, it covers all the mechanical supplies, gas supplies, compressed air supplies, whatever. It's a fairly comprehensive list and probably one I would turn to. We

can offer a client the expertise and capacity to design almost any type of M & E system that maybe required.

BLD04-ORG04-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD04-ORG04-REP02: Well, I think our firm has been shaped and set up now so that we can offer a client, I would say, everything . . . almost everything that he may need for most construction projects – certainly for buildings. We have a specialized department now for unusual or abnormal problems that may occur; for example, contaminated land and corrosion – that's a good one. We have corrosion experts within our special services unit. But we, as designers, can call upon any of these services for any of our schemes when the need arises.

BLD04-ORG04-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD04-ORG04-REP02: I think we . . . are deeply involved in the motor car industry, for example, because we designed all of the M & E services for a large car manufacturing plant over the last ten years. I think we have the knowledge and experience to design services for most types of projects, including industrial projects.

## 23.5 INTERVIEW TRANSCRIPT BLD04-TRAN05

Organization Role: Primary Construction Contractor

Organization Code: BLD04-ORG05

Respondent Role: Boundary Representative for BLD04-ORG05

Respondent Code: BLD04-ORG05-REP01

Interviewer Code: BLD04-ORG05-INT01

BLD04-ORG05-INT01: Who was the client organization?

BLD04-ORG05-REP01: Our client organization was clearly BLD04-ORG01.

BLD04-ORG05-INT01: What type of organization was the client [BLD04-ORG01]?

BLD04-ORG05-REP01: They were a development company [commercial property developer].

BLD04-ORG05-INT01: Why did the commercial property developer [BLD04-ORG01] decide to commission the building project?

BLD04-ORG05-REP01: I probably don't know specifically . . . other than . . . they saw it as an opportunity, effectively, to refurbish and to make, you know, to make money. They saw it as a commercially viable project to convert this – I think the building had been lying derelict for sometime – this derelict building into useable office space. And they believed that it was a viable project: they could make money by doing that and letting the space at the end of the day.

BLD04-ORG05-INT01: How much previous experience of the building process did the commercial property developer [BLD04-ORG01] possess?

BLD04-ORG05-REP01: I think the client [BLD04-ORG01] had . . . although I understand the client/developer [commercial property developer] here – BLD04-ORG01 – was a fairly new company. They had previously been . . . the personnel involved in this had previously been in this business – developing. And from our conversation with BLD04-ORG01-REP02, I gathered that he had a very good understanding of what was involved in doing this work. He [BLD04-ORG01-REP02] had good perception of what was involved in refurbishing a building. He [BLD04-

ORG01-REP02] had a good handle on what he could effectively afford in the way of construction finishes, costs, level of finish, etc. So he [BLD04-ORG01-REP02] had a good understanding of that.

BLD04-ORG05-INT01: Did you know that BLD04-ORG01-REP02 was affiliated to one of the design team members as well as to the commercial property developer [BLD04-ORG01]?

BLD04-ORG05-REP01: Yes. I knew he was the senior, or what I took to be the senior partner in BLD04-ORG02. And at the same time I was very much aware that he also had another hat: he was part of the development organization [BLD04-ORG01].

BLD04-ORG05-INT01: To what extent do you think the overlapping of these roles and responsibilities created any problems during your relationships with the commercial property developer [BLD04-ORG01] and the architectural design consultant [BLD04-ORG02]?

BLD04-ORG05-REP01: Absolutely none.

BLD04-ORG05-INT01: To what extent do you think the overlapping of these roles and responsibilities created any benefits during the course of undertaking the building project?

BLD04-ORG05-REP01: I think it did, because it gave us access to the developer [BLD04-ORG01] at the end of the day. And I feel that the developer [BLD04-ORG01] was very much involved – directly involved – in the construction aspects. Which on some similar types of operations we've done, the developer [commercial property developer] has been more remote and we have not been able to get straight from the developer [commercial property developer]: "Can he afford to do this? Does he really want gold-plated bathroom taps on the outside toilet?" We were very much aware, and BLD04-ORG01-REP02 made it very much aware, that, you know, he was keen on what was happening. He [BLD04-ORG01-REP02] was keen to know the costs of any of the problems. He [BLD04-ORG01-REP02] wanted us to make sure that we identified the monetary things we had got were true – particularly on that job – where I believe . . . it's thrown me back now . . . I think the foundations were particularly onerous. We were going into virtually uncharted waters. When you have a city centre site it's not practical at tender stage to do a full, detailed soils investigation below the existing building. You don't know what's there. You can't possibly find out what's there until you knock down the original building. And hence there was quite substantial



groundworks needed when we discovered the absence of foundations for the existing facade and some of the poor ground conditions that lay, you know, underneath the original building. And he [BLD04-ORG01-REP02] was fairly keen for us to keep him closely advised of that, and both the project quantity surveyors [BLD04-ORG03] as well. And I feel that BLD04-ORG01-REP02 involvement as the developer [commercial property developer], and his understanding of that, did help.

BLD04-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD04-ORG01] did your organization possess?

BLD04-ORG05-REP01: No, not with BLD04-ORG01.

BLD04-ORG05-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD04-ORG05-REP01: We took on board the role as main contractor [primary construction contractor]. We also took on . . . the role in co-ordinating the work. We actively co-ordinated the works between the architect [BLD04-ORG02] and the structural engineer [BLD04-ORG04] and the services engineer [BLD04-ORG04]. We took on a fair bit of that on this particular job, because it was that sort of job where you are refurbishing buildings and things like this. It's not possible for the services engineer [BLD04-ORG04] and, indeed, the architect [BLD04-ORG02] to be fully aware of what's there until we partially do a bit of work, and so by doing sections of work, identify what's there. And by bringing the architect [BLD04-ORG02], the structural engineer [BLD04-ORG04], and the services engineer [BLD04-ORG04] in, ascertaining what's there and what can be done with this and what can be done with that, we actively played a major part in the co-ordination of the, you know, the various disciplines . . . the professional disciplines there.

BLD04-ORG05-INT01: To what extent do you think your organization may have slightly crossed over your boundary and slightly adopted a degree of the architectural design consultant's [BLD04-ORG02] role as the lead consultant?

BLD04-ORG05-REP01: I wouldn't have thought it impinged on him. I think the lead consultant, the architect [BLD04-ORG02] in this case, was very pleased that we took on board that, because it helped the situation and it speeded things up. It's sometimes difficult for architects [architectural design

consultants] to ignore in that situation . . . to know exactly what's the most important thing to progress the works:  
 "What are the key things that we need to know, particularly in the early stages, to enable the foundation and the structural work to be done satisfactory?" We were very much aware, upfront, that we would have to tell BLD04-ORG04 [structural engineering design consultant]:  
 "We need the foundations. We need this sorted first. We need this detail. We need that detail." And we were able to supply them with a lot of . . . sort of information scheduling, as regards what we needed and when. And I think that the architect [BLD04-ORG02] found that particularly useful.

BLD04-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] during a design and build form of procurement did your organization possess?

BLD04-ORG05-REP01: Now that's a good question. Personally, I haven't been involved with them before. That was the first job that I was actively involved with them. I must be honest, but I am not sure if we'd used them before. We'd carried out works in \*\*\*\*\* previous. I don't know if BLD04-ORG02 were involved in that.

BLD04-ORG05-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD04-ORG05-REP01: BLD04-ORG05-REP01's role was as contracts manager. My role is, really, to oversee all aspects of the construction on site; to make sure that the information system is set up, so that we actually receive information in good time to keep the construction going; to make sure that we've got adequate resources on site; to make sure that the construction meets our programme; and to make sure that the quality of what we leave at the end of the day is, you know, up to scratch. And in order to do that I ensure that we have two distinct, sort of, roles on site. One we have is a project manager. His key job that I charge him with is to make sure that we have the information in good time and that that information is properly planned out in advance, so that we have a proper programme. And working alongside him is what we would call an instruction superintendent or general foreman. And he is charged with the responsibility of ensuring that we have the labour, plant, and material resources on site to meet that programme. And so my main role is to make sure that these two factions work together and move progressively through the job, you know, together. The project manager

specifically sorts out all of the information and makes sure that the job is programmed, and that the main orders are placed for subcontracts and these sort of things. Whereas the general foreman on site makes sure that he employs suitable labour, he orders the materials in good time, and that the work is carried out to the drawings of details. The engineers on our sites always work for the foreman. In other words, it's the foreman's responsibility to make sure that what happens in the back is right. It's the agent's responsibility to make sure that all the necessary information and the pre-planning and the thought process is put into it. He supplies the information, and the foreman uses the information along with the engineers. And it's my job to make sure that happens properly and that that element of the work progresses. My other main responsibility is to make sure that the quantity surveyor [construction cost consultant] on site is properly measuring the information as it comes in and it's valued properly. The project manager also acts as the point of contact between the various parties. But I attend all the main progress meetings to make sure that that co-ordination between them is actually moving smoothly and correctly.

BLD04-ORG05-INT01: What type of construction contract was used?

BLD04-ORG05-REP01: We worked to a contract sum analysis type of system, whereby we had a budgetary element identified. The whole job was out in packages, and we then received the information. We then measured that properly. We checked that that complied with the package, and if it didn't comply with the package, then we discussed with the architect [BLD04-ORG02] and the quantity surveyor [BLD04-ORG03] ways and means of bringing that within the package value. There were occasions whereby, for whatever reason, if it couldn't meet the package, then we warned them that we would have to look at other packages later on in order to make the necessary savings. But I am quite sure that the structural [structural engineering design] package never came within budget, because of the extra foundation work that was involved on this. But having identified this at the early stages of the job, the client [BLD04-ORG01] and the architect [BLD04-ORG02] were able to take the necessary action on the back-end packages.

BLD04-ORG05-INT01: How much previous experience of working with the construction cost consultant [BLD04-ORG03] did your organization possess?

- BLD04-ORG05-REP01: Yes, we did. I know that because although I had not worked with BLD04-ORG03-REP01 before, I do know that we have worked with BLD04-ORG03 previously in the past.
- BLD04-ORG05-INT01: How much previous experience of working with the construction cost consultant [BLD04-ORG03] did you possess?
- BLD04-ORG05-REP01: No, I hadn't. But I do know that our commercial director was familiar with BLD04-ORG03-REP02, and that we had worked with them in the past on work in this area.
- BLD04-ORG05-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD04-ORG03-REP01] did you possess?
- BLD04-ORG05-REP01: Well, personally I hadn't. None of the site team had, but I did know BLD04-ORG03-REP02 and we had worked with BLD04-ORG03 in the past. I knew that because we talked about various ways in which we would handle this and we referred to previous jobs where that had been successful.
- BLD04-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD04-ORG02] did your organization possess?
- BLD04-ORG05-REP01: I don't know that, to be honest. I wasn't aware of any specific jobs that they'd worked on before. But I only came in here in 19##, so it could well have been that BLD04-ORG05 had worked with BLD04-ORG02 in the past. But I wasn't aware of that.
- BLD04-ORG05-INT01: How much previous experience of working with the structural engineering design consultant [BLD04-ORG04] did your organization possess?
- BLD04-ORG05-REP01: Yes, we had previously worked with BLD04-ORG04 on more than one project.
- BLD04-ORG05-INT01: How much previous experience of working with the structural engineering design consultant [BLD04-ORG04] did you possess?
- BLD04-ORG05-REP01: Yes, once again, on more than one project.
- BLD04-ORG05-INT01: How much previous experience of working with the representative of the structural engineering design consultant [BLD04-ORG04-REP01] did you possess?

- BLD04-ORG05-REP01: Yes, I did work with BLD04-ORG04-REP01 before. They were on the Organization 4G project and I met all people associated with BLD04-ORG04. That was a major job for BLD04-ORG04 – Organization 4G. BLD04-ORG04-REP01 was involved in the Organization 4G job. So I did know BLD04-ORG04-REP01.
- BLD04-ORG05-INT01: How much previous experience of working with the building services engineering design consultant [BLD04-ORG04] did your organization possess?
- BLD04-ORG05-REP01: Yes, once again, on more than one project.
- BLD04-ORG05-INT01: How much previous experience of working with the building services engineering design consultant [BLD04-ORG04] did you possess?
- BLD04-ORG05-REP01: Yes, again, on more than one project. They did work on the ORGANIZATION 4G project. BLD04-ORG04-REP02 and people had worked on that plant, and I knew them.
- BLD04-ORG05-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?
- BLD04-ORG05-REP01: I found them to be *very reputable*.
- BLD04-ORG05-INT01: The construction cost consultant [BLD04-ORG03]?
- BLD04-ORG05-REP01: Again, I found them to be *very reputable* as well.
- BLD04-ORG05-INT01: The architectural design consultant [BLD04-ORG02]?
- BLD04-ORG05-REP01: Yes, they were *very reputable*. There was nothing there.
- BLD04-ORG05-INT01: The structural engineering design consultant [BLD04-ORG04]?
- BLD04-ORG05-REP01: Yes, I would say they were *very reputable* as well.
- BLD04-ORG05-INT01: The building service engineering design consultant [BLD04-ORG04]?
- BLD04-ORG05-REP01: I would say they were *reputable*. There was the odd situation on there that caused us concern at certain times.
- BLD04-ORG05-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports,

letters, drawings, etc., to each of the following organizations. First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG05-REP01: I would think, probably, about *once weekly*.

BLD04-ORG05-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG05-REP01: *Several times weekly*.

BLD04-ORG05-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG05-REP01: *Several times daily* – without a doubt.

BLD04-ORG05-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG05-REP01: Again it varied. When we were doing the foundations it was *once daily*. But when we cleared . . . you see, these people slot in and out of the job as it progresses. But when they were involved as structural engineers [structural engineering design consultants] it was *once daily* contact with them, particularly with the foundations and things like that.

BLD04-ORG05-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG05-REP01: Again, that would be more or less *once weekly*. Although it built up and increased to *once daily* once we were in the throws of a lot of the service installation. I mean, all of these things do peak. Overall, I would say *once weekly* on the services.

BLD04-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG05-REP01: I would think *rarely*. No, I don't think we ever had a conflict with the client [BLD04-ORG01]. So I would change that to *never*.

BLD04-ORG05-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG05-REP01: *Rarely*, as well.

BLD04-ORG05-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG05-REP01: *Rarely*, with the architect [architectural design consultant] as well. I can only think of a couple of instances with the architect [architectural design consultant] where we did have a situation that we needed information and things, or where there was any problem over anything, you know, that we had done or decided to do as the contractor [primary construction contractor].

BLD04-ORG05-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG05-REP01: I don't think we had any with the structural engineer [BLD04-ORG04], so *never*. Because, basically, we were in his hands completely. He had the expert knowledge, and to be honest, we *never* had any conflict. We more or less had to do exactly as, you know, he said. So you know, probably, on the structural side, we never had any conflict. In fact, the one we had with the surveyor [BLD04-ORG03] was over the structural engineer [BLD04-ORG04], whereby we had pumped in a considerable quantity of additional concrete that he [BLD04-ORG04] considered was absolutely necessary.

BLD04-ORG05-INT01: Do you think this form of conflict is more likely to occur when your organization has acquired knowledge and experience of services provided by other organizations within the project/design team?

BLD04-ORG05-REP01: I would think . . . yeah, there's certainly something in that. When we're completely in their hands and we don't have anything to contribute, then we don't often have a conflict. This is because we more or less have got to do, you know, what they say, and we don't understand the reasons for it – we can't put forward alternatives or anything. Certainly, if we understand what they're doing, then it gives us more opportunity, you know, to have a look at the situation and perhaps put our own input into that.

BLD04-ORG05-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG05-REP01: Again, I don't think we had any with the building services engineer [building services engineering design consultant]. So, I would say, *never*.

BLD04-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations. First of all, the commercial property developer [BLD04-ORG01]?

BLD04-ORG05-REP01: *Never – 1.*

BLD04-ORG05-INT01: The construction cost consultant [BLD04-ORG03]?

BLD04-ORG05-REP01: Very rarely. I would say, 2.

BLD04-ORG05-INT01: The architectural design consultant [BLD04-ORG02]?

BLD04-ORG05-REP01: *Never – 1.*

BLD04-ORG05-INT01: The structural engineering design consultant [BLD04-ORG04]?

BLD04-ORG05-REP01: *1, again.*

BLD04-ORG05-INT01: The building services engineering design consultant [BLD04-ORG04]?

BLD04-ORG05-REP01: *1.*

BLD04-ORG05-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD04-ORG05-REP01: We provide every conceivable service to a client. A client can come to us and say: “I would like to build a particular project.” Currently, at this stage, we are involved in projects where we have gone and obtained the developer [commercial property developer] to buy the land and lease it back to him; we will go and employ a full professional team, such as a professional architect [architectural design consultant], a professional quantity surveyor [construction cost consultant], professional structural [structural engineering design consultant] and services engineers [building services engineering design consultant], to design the building for him; we will meet all of the requirements for building regulation and planning; we will then construct the project and provide all of the necessary information in the way of manuals and procedures for them to use that building after we have completed it; and BLD04-ORG05 will organize through either our own sections of the company or external people, the repair and maintenance [facilities management] of that building for the next twenty-five years.

BLD04-ORG05-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?



BLD04-ORG05-REP01: To be honest, I think we work in all sectors. I mean, generally, we work in all aspects of it. We're heavily committed to the health area. We're also into the public-sector works in the way of education and that. We work in the commercial sector, where we do office developments and things like this. We're very much involved in the industrial sector here in the North-East. We do a lot of production facilities associated with car manufacturing. We work and provide development and retail as well, you know, we're involved in that. I am just trying to think. I think you will find that we cover all sectors of work.

BLD04-ORG05-INT01: How many years has your organization been established?

BLD04-ORG05-REP01: About . . . probably about eighty years, at least. BLD04-ORG05, as a company, has operated in the building and construction industry for eighty years.

## 24 APPENDIX O: BUILDING PROJECT 5 (BLD05) INTERVIEW TRANSCRIPTS

### 24.1 INTERVIEW TRANSCRIPT BLD05-TRAN01

Organization Role: Architectural Design Consultant

Organization Code: BLD05-ORG02

Respondent Role: Boundary Representative for BLD05-ORG02

Respondent Code: BLD05-ORG02-REP01

Interviewer Code: BLD05-ORG02-INT01

BLD05-ORG02-INT01: Who was the client organization?

BLD05-ORG02-REP01: The client was BLD05-ORG01 – BLD05-ORG01-REP01. We didn't really have much contact at all with them.

BLD05-ORG02-INT01: So you had limited contact with the client organization?

BLD05-ORG02-REP01: No, no. This is your first problem isn't it? BLD05-PAR01 had next to no . . . unless there was contact between one of our partners – BLD05-ORG02-REP02 – and BLD05-PAR01 before I came here, which could have been over a period of four years, because the job has been in the office for six years now. As far as I am aware there was no contact with them. Our contact throughout was with the developer, BLD05-ORG01, and that was BLD05-ORG01-REP01.

BLD05-ORG02-INT01: What type of organization was the client organization [BLD05-ORG01]?

BLD05-ORG02-REP01: Well, I don't really know much about them, to be honest. A private developer? Well . . . really, I don't know. I don't know much about them, to be honest. As far as I am concerned, they are the developer [commercial property developer]. I have never really gone into it.

BLD05-ORG02-INT01: Why did the commercial property developer [BLD05-ORG01] decide to commission the building project?

BLD05-ORG02-REP01: Again, I don't know anything about that, because that was too long ago – it was six years ago. I came in four years down the line. You see that scheme up there [pointing to an artist's impression of the original building design]

concept up on the interview room partition wall], that was the previous design for it, and it doesn't look like that anymore.

BLD05-ORG02-INT01: Did this cause you any problems, that is, not being involved with the building project from its inception?

BLD05-ORG02-REP01: Well absolutely; there is absolutely no two ways about it. There was a female architect [BLD05-ORG02-REP03] in this office who worked on it with one of our partners – BLD05-ORG02-REP02 – from when he [BLD05-ORG02-REP02] arrived, I think. I don't know whether she [BLD05-ORG02-REP03] designed it, or if BLD05-ORG02-REP02 designed it. I would imagine BLD05-ORG02-REP02 designed it. I think there was more money in the job then. It was a lightweight construction with panels, because the ground conditions were very poor. Obviously they're still very poor, and they all [the individual units of the building project] had to be piled. But somehow, and for some reason, we ended up with brickwork. I think that was purely financial. That [pointing to an artist's impression of the original building design concept that illustrates the use of light-weight panels up on the interview room partition wall] was an expensive system. They [BLD05-ORG05] weighed it up with brickwork on the offices – all brickwork – which obviously made them heavier. Presumably, overall, with the extra work that they [BLD05-ORG05] had to do in the ground, it must have been more economical than the lightweight construction.

BLD05-ORG02-INT01: To what extent did you experience any problems when you initially established your relationships with the other organizations that were already involved with the building project?

BLD05-ORG02-REP01: That wasn't a problem at all. I think, generally, the people were very good. The people were easy to get on with. But that wasn't a problem at all. The problem was trying to catch up on the history of the project: four years history that I knew nothing about. That took a while – it took quite a long time. But at the end of the day, it wasn't a problem, really, I suppose, because that [pointing to an artist's impression of the original building design concept up on the interview room partition wall] was ditched. All there was when I came onto the project, apart from the fact that they weren't fully designed layouts, was a full design.

BLD05-ORG02-INT01: How much previous experience of the building process did the commercial property developer [BLD05-ORG01] possess?

BLD05-ORG02-REP01: Again, do you mean BLD05-PAR01 or BLD05-ORG01?

BLD05-ORG02-INT01: Now that you come to mention it, BLD05-PAR01, in the first instance.

BLD05-ORG02-REP01: Well, BLD05-PAR01 have got nothing to do with it. I know they are a parent company [BLD05-PAR01 is a parent company to BLD05-ORG01 and BLD05-ORG5], but they really don't have anything to do with it – as far as I am aware. We've had no contact whatsoever with BLD05-PAR01, apart from a couple of . . . there was one meeting that we had in here where the main man [BLD05-PAR01-REP01] turned up to try and shake things up, because it was a job which took a long time to get moving. Then there was another time when he [BLD05-PAR01-REP01] disappeared off the scene – he'd left! Then the next guy [BLD05-PAR01-REP02] that took over, I think, turned up on site to have a look around. That's the only contact that I've ever had with them. BLD05-PAR01 is just the parent company, but they're still an important player in the whole picture. I mean, you can forget them, for the moment, BLD05-ORG01 is our developer [commercial property developer].

BLD05-ORG02-INT01: How much previous experience of the building process did the commercial property developer [BLD05-ORG01] possess?

BLD05-ORG02-REP01: I don't really know. All I know is that at the moment they're doing this thing up here [pointing to an on-going refurbishment building project located in the street immediately opposed the interview room], and they're doing something in \*\*\*\*\*. I think that's all they're doing at the moment. Apparently, they've done some units in\*\*\*\*\* – they're based in \*\*\*\*\*. Apparently, they've done something down there, but not on this scale. But . . . I don't know any more than that about them.

BLD05-ORG02-INT01: How much previous experience of working with the commercial property developer [BLD05-ORG01] did your organization possess?

BLD05-ORG02-REP01: As far as I am aware, that is it. I am fairly certain that's it. I think it was a job that came into the office through BLD05-ORG02-REP02. I think it's the first job that came into the office while he [BLD05-ORG02-REP02] was here. I am pretty sure he [BLD05-ORG02-REP02] was fairly directly involved in it.

BLD05-ORG02-INT01: It was therefore the first time that your organization had worked with the commercial property developer [BLD05-ORG01]?

BLD05-ORG02-REP01: Absolutely, yes.

BLD05-ORG02-INT01: How did your organization become involved with the commercial property developer [BLD05-ORG01] on this building project?

BLD05-ORG02-REP01: I don't know. I've no idea.

BLD05-ORG02-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD05-ORG02-REP01: Well, first of all, again, I don't know what happened at the beginning, and I don't know what the agreement was, or is. All I can tell you about is what we have done in the time that I have been involved in it, which is a fairly standard thing. Obviously, it was a JCT 80 contract and we were appointed to administer the contract from when it eventually started – which obviously took a long time to design the scheme and to manage it on site. I would say that was it, which is fairly standard.

BLD05-ORG02-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD05-ORG02-REP01: Personally?

BLD05-ORG02-INT01: Yes. How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD05-ORG02-REP01: I suppose I did that.

BLD05-ORG02-INT01: Can I just confirm with you that you performed all of the roles and responsibilities that you have just outlined in terms of your organization's roles and responsibilities, and that you did not receive any form of assistance from a colleague within your organization?

BLD05-ORG02-REP01: Well, it's complicated a little bit because . . . because as I said before, I think BLD05-ORG02-REP02 brought this job into the office, or it came into the office with him. He [BLD05-ORG02-REP02] seems to be fairly attached to it, because it was the first one that came into the office when he started here – as a director. This was before he [BLD05-ORG02-REP02] was managing director. So he [BLD05-ORG02-REP02] . . . I think he feels fairly attached to it. And when it . . . he [BLD05-ORG02-REP02] has constantly been involved. Obviously, he [BLD05-ORG02-REP02] was, with me coming in only two years ago, he's the one person who's continued from the start – the previous girl [BLD05-ORG02-REP03] left. So he's [BLD05-ORG02-REP02] been the continuity through, and he had to be there; otherwise, I would have been like a fish-out-of-water with the project, full stop, for a long, long time. So he [BLD05-ORG02-REP02] continued through. And he [BLD05-ORG02-REP02] continued . . . he continued to go to the site meetings and he chaired all of the site meetings. In fact, he [BLD05-ORG02-REP02] chaired nearly all of the meetings, apart from when he was on holiday. But he [BLD05-ORG02-REP02] did that . . . I think he's a little bit frustrated, because he wants to be involved, still, in design and architecture and seeing things built on site. But, obviously, the way his [BLD05-ORG02-REP02] job is now, he's not involved in that. He's [BLD05-ORG02-REP02] not the project leader on projects anymore, you know: he sort of oversees things that go on in the office. But he [BLD05-ORG02-REP02] seems to have a particular attachment to this job for the reasons that I have told you. So he [BLD05-ORG02-REP02] continued to go to site. What we were going to do – it started on site in April last year – he [BLD05-ORG02-REP02] said he would go to the first two or three site meetings – for political reasons – because he'd been involved for so long and it might not have looked too clever if he just bailed-out straight away. So he [BLD05-ORG02-REP02] went to the first two or three and said that once he'd been on holiday in July or August he wouldn't go back. But he [BLD05-ORG02-REP02] did. I couldn't get rid of him [BLD05-ORG02-REP02]! So he [BLD05-ORG02-REP02] continued to go. He [BLD05-ORG02-REP02] chaired all of the site meetings. We have just had the last one a couple of weeks ago and he [BLD05-ORG02-REP02] was still there then.

BLD05-ORG02-INT01: To what extent did you find this a problem?

BLD05-ORG02-REP01: Well, I suppose, it's hard to say. But it was never a problem. It was never a problem. BLD05-ORG02-REP02 and I get on very well, and every job I seem to work on in the office is for him. I don't know whether that is by design or what, but I think it probably is. But we seem to work fairly closely together, and sometimes . . . I like – when I am working for a director – I like to make sure that he [BLD05-ORG02-REP02] sees everything that comes in and goes out, which I think has got to happen in a management system. But some people don't do that. He [BLD05-ORG02-REP02] may think, sometimes, he doesn't need to see things. I've said: "You know I don't need to show you this, but I am going to show you it anyway." So that if, for instance . . . if I am off, he [BLD05-ORG02-REP02] knows what is going on. It seems to have worked very well, and we don't seem to have had any problems from that point-of-view. I don't feel like I am standing on his [BLD05-ORG02-REP02] toes and he doesn't stand on my toes. Even when we have been to presentations for projects – other projects – we've had to say, you know: "We work very closely together." I think it's a little bit of a problem – personally, I think – and I've said this to him [BLD05-ORG02-REP02]. When we go to do a presentation for a new project, not in the hierarchy of the company, it's been said to BLD05-ORG02-REP02: "So what's your involvement going to be in the project?" He [BLD05-ORG02-REP02] knows fine well it's not going to be very much. It's going to be from a management point-of-view, and I'll do it. I have said to him: "Do you not think that I should be promoted?" Because I think it lacks a bit of credibility. And I personally think, I mean, obviously I want it to happen anyway, but I think . . . I think it could be detrimental to the company a little bit, because he [BLD05-ORG02-REP02] is trying to spread himself too thinly. He [BLD05-ORG02-REP02] can't be working on all of the projects all of the time!

BLD05-ORG02-INT01: To what extent would you say BLD05-ORG02-REP02 is unable to adequately delegate or relinquish certain roles and responsibilities?

BLD05-ORG02-REP01: He's [BLD05-ORG02-REP02] a hell of a lot better than some, I can tell you – in here! He [BLD05-ORG02-REP02] does let you get on with it – he doesn't interfere. I suppose that comes over a period of time – with the trust. He [BLD05-ORG02-REP02] obviously finds out what you can do and he lets go. But I think . . . I think he [BLD05-ORG02-REP02] wants to be kept involved, particularly

with this project. I think we are getting a little bit off the track here?

BLD05-ORG02-INT01: Your comments are very useful to the overall context of the building project.

BLD05-ORG02-REP01: But I do like working with him [BLD05-ORG02-REP02]. I don't know . . . I suppose from my point-of-view . . . I suppose, a little bit . . . it dilutes my credibility, on site. Well, not so much on site, but in the meetings. This is because he [BLD05-ORG02-REP02] comes in once a month and chairs the meeting and that's it. That's his [BLD05-ORG02-REP02] only involvement. So, I suppose, that is a problem . . . and it would have been better for me, for my personal development, if I'd taken it on from the beginning. If he [BLD05-ORG02-REP02] wanted to look at the project on site, he should go and have a look, but he doesn't necessarily need to be in chairing the meeting. And if, to be honest, if . . . even if he [BLD05-ORG02-REP02] wanted to go to the meetings . . . if he wanted to go to the meetings, I think he should chair them, because he is senior to me. What I don't like . . . what I wouldn't like . . . is for him [BLD05-ORG02-REP02] to come to the meetings and me to chair them. That doesn't seem right. It's almost . . . I think that dilutes your credibility a little bit as well. It's like you're being checked up on, and I don't like that. I don't think that's necessary. It happened with the QS [BLD05-ORG03-REP01] on the meeting before last. The QS's [BLD05-ORG03-REP01] senior came out of the blue, and I thought: "What the hell is he doing here?" He [BLD05-ORG03-REP02] was just seeing how well their man [BLD05-ORG03-REP01] was performing. As far as I could see, that was what was going on. I don't really like that. I don't think that's fair. I think that if you're going to employ someone to do the job, you've got to let them do it, or you've got to get rid of them. You can't be constantly peering over their shoulder to make sure they're doing it properly. You should find out fairly quickly whether they can do the job or not. Anyway, what was the original question?

BLD05-ORG02-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD05-ORG02-REP01: I would say . . . apart from that . . . I would say I ran the project 100%, but with BLD05-ORG02-REP02 there. BLD05-ORG02-REP02 sits in his room and he's always there to talk to. I wouldn't pester him [BLD05-ORG02-REP02] with incidental problems. But if there are . . .



maybe something I consider to be an important issue on the project, then I would go and talk to him [BLD05-ORG02-REP02] about it; because he's a director and it's his responsibility to be aware of these things. Until about a year ago – a year and a half ago – only the directors could sign letters in here. I think that was because of bad experiences that they'd had in the past. I came from a practice where I'd sign letters. But the way they went on there was if there was anything contentious in the letter – but they left it to the person they'd employed to make that judgement – if there was anything contentious, then you'd go and speak to someone more senior to find out what they really want to do. That is really what has been adopted here now. So we do sign letters now.

BLD05-ORG02-INT01: How would you describe the building project?

BLD05-ORG02-REP01: In what way? From a design point-of-view?

BLD05-ORG02-INT01: From both a general and a design point-of-view.

BLD05-ORG02-REP01: Well, it's obviously a business park. Well, it's kind of a business park/industrial park, because it's got two obvious parts to it. Those units there [pointing to a plan drawing that is unfolded on the interview room table] are industrial units, and those units there are office units. It's phase one of what will potentially be a bigger development, because at this end the site runs off. Those units there [pointing to a plan drawing that is unfolded on the interview room table] are almost the same size of phase two. We're not quite sure what is going to go on that. I think I mentioned that to you the other day. We've just started to work on that now.

BLD05-ORG02-INT01: How was the balance between the number of office and industrial units determined?

BLD05-ORG02-REP01: I have no idea. I'll tell you something I do know, only because of . . . I heard about it . . . not because I was involved with it . . . is that this was Enterprise Zone land [pointing to a plan drawing that is unfolded on the interview room table], and the contract was signed in, I think, 19## to preserve the benefits of the Enterprise Zone status, which obviously ran out. But, apparently, because the contract was signed, that meant that . . . it obviously helped the project to go ahead, even though it took a hell of a long time to get off the ground. It was one of these things that was always in the office. It was always going to go, and then it wasn't going to go, and then it was, and then it wasn't. It stop-started all the way along. I got

involved when it eventually – nearly went – and then eventually did. Otherwise, that site wouldn't have been developed, I don't think yet, if it wasn't for the Enterprise Zone status.

BLD05-ORG02-INT01: So the Enterprise Zone status presented a financial incentive for the commercial property developer [BLD05-ORG01]?

BLD05-ORG02-REP01: Yeah. Yes, at the time.

BLD05-ORG02-INT01: What was the location of the building project?

BLD05-ORG02-REP01: It's on the \*\*\*\*\* bank of the \*\*\*\*\* \*\*\*\*\*.

BLD05-ORG02-INT01: Were there any unusual or unforeseen site difficulties?

BLD05-ORG02-REP01: Yes, it's a reclaimed site. It's the site of a former, I think the site used to be an iron works. Its all . . . I think, it's reclaimed land. I don't know how much of it is reclaimed land, but I think it is. I certainly think that bit there is reclaimed land [pointing to a plan drawing that is unfolded on the interview room table]. It might be an idea to show you a site drawing to give you an idea of the overall area? There's all sorts of . . . there's contamination in the ground. I don't think it's particularly severe, but measures had to be taken to monitor that – to keep it under control. Some of the units have had to be piled. I can't remember which ones, but some of them had to be piled. They've [BLD05-ORG05] also had to thicken up the concrete slabs to account for any possible movement – they all had to be piled? To be honest, I can't remember which ones. I don't need to know that, anyway. I should know, but I don't need to know that.

BLD05-ORG02-INT01: What was the commercial property developer's [BLD05-ORG01] original budget for the building project at the briefing stage?

BLD05-ORG02-REP01: I didn't know anything about it.

BLD05-ORG02-INT01: You were not aware of any construction costs or estimates?

BLD05-ORG02-REP01: Oh, I do, I do now, but I didn't know then. The figures now . . . the costs for the entire project are something like £6.3 million. But I don't know what it was when it was that scheme [pointing to an artist's impression of the original building design concept up on the interview room partition wall]: the original scheme. It might have been

. . . something like . . . a figure like £12 million rings-a-bell, but I don't know whether that covers both halves of the project.

BLD05-ORG02-INT01: To what extent would you say that the construction budget changed?

BLD05-ORG02-REP01: It's come down, I would say, considerably. For whatever reason, I don't know. I would have to spend a lot of time searching through the files, and I don't want to do that, to find all of the figures.

BLD05-ORG02-INT01: What tendering procedure was used?

BLD05-ORG02-REP01: It didn't go to tender, no. It went on to BLD05-ORG05. It was always going to be BLD05-ORG05. BLD05-ORG05 have been involved in the project since day 1. It was always going to be BLD05-ORG05.

BLD05-ORG02-INT01: So BLD05-ORG05 didn't actually tender for the building project?

BLD05-ORG02-REP01: Well, they were always going to get the job. BLD05-ORG03, the QS [construction cost consultant], have been involved all the time as well, and they [BLD05-ORG03] have put together various cost plans to the client [BLD05-ORG01]. So, theoretically, he [BLD05-ORG01] knew what he was going to get . . . I can't even remember this now . . . so he knew what he was going to get. But at the end of the day, BLD05-ORG01 didn't press the button on the job. It just stuttered along and stuttered along. Then about August, or maybe July/August 19##, they [BLD05-ORG01] decided they were going to go ahead, and they wanted to start on site in January, which wasn't very long. There was no priced bill by BLD05-ORG03, at the end of the day, because they didn't have sufficient information from BLD05-ORG05. BLD05-ORG05 didn't want to give information because it restricted them in going out to the market and getting the best price for everything, because they were . . . they had to stick to, basically, a guaranteed maximum price. For them [BLD05-ORG05] to give those guarantees was a little bit difficult at that time, because they still weren't really sure when it was going to start on site. If they gave a guaranteed maximum price, and the job didn't start for another year, then they would've had problems, because prices are obviously going to go up. So they [BLD05-ORG05] didn't give . . . they didn't give a full breakdown to BLD05-ORG03 to put in the priced bill, because it wasn't really a priced bill. It was half a priced bill, if that! There were lots of

noughts and lots of big lumps of money which you couldn't really tie down to anything. You just knew, let's say . . . I don't know . . . there was internal finishes and a lump. You didn't know how much there was against carpets or wall tiles or whatever. So it caused an awful lot of problems when the thing actually started. It's only just finished – the problems that we've had trying to work out what the finishes were going to be – because there was nothing in against them. The client [BLD05-ORG01] just knew he wanted something of good quality and BLD05-ORG05 just put something in that they considered good quality. What they [BLD05-ORG05] considered good quality certainly wasn't what we considered good quality. So to find the balance, somewhere, involved BLD05-ORG01 putting more money in. Do you understand what I mean?

BLD05-ORG02-INT01: Yes, I understand.

BLD05-ORG02-REP01: It was all very vague and very wishy-washy. I could show you the bill. It's that thick [illustrating the point with his thumb and forefinger]. It's got nothing in it; honestly, it's just lots of noughts.

BLD05-ORG02-INT01: If I could just recap for one moment? Because the primary construction contractor [BLD05-ORG05] was a sister-company to the commercial property developer [BLD05-ORG01] this caused you problems when trying to achieve a consensus on quality with a guaranteed maximum price?

BLD05-ORG02-REP01: It only caused that problem, really, when we got on site. Until we got on site, there wasn't really that problem. I think, throughout the project, we, and particularly me, were put in a very difficult position by the client [BLD05-ORG01], because . . . I have to get this right . . . I know I thought about it so many times through the job: "How do you get around this problem?" I became the arbiter of quality. I know I am the architect [architectural design consultant] and that applies, anyway, but I became the arbiter of quality for the project when there was nothing to say what the quality was meant to be in the first place – because there was no brief. Let me think of an example. I mean I could pick any one of a million examples. For instance, the carpets, the tiles, the kitchen units. There was nothing in against anything. There was nothing specified by BLD05-ORG05. So the client [BLD05-ORG01] didn't know what he was going to get. But he [BLD05-ORG01] should really have known what he was going to get, if the priced bill had been put together

correctly. But there again, if you take that back to BLD05-ORG01, they should have given enough time for it to have been put together correctly. It's all very complicated this. So say, for example, kitchen units, right? They [BLD05-ORG05] sent me details that I asked for – as I did on everything – on what they proposed. I said: "Right, they're crap, we're not having them." So I had to go and search for something else that I thought was appropriate in terms of the quality and the design, and that it was something that I wanted to put into my project. That's the way I look at everything, you know: "It's mine." You know: "It's got to be right." It sometimes takes a lot longer to get things turned around, but at the end of the day, I think it's worthwhile, because you get a better design. Theoretically, that's why I do the job. So, if say, what I thought was appropriate for the project was more expensive than they'd [BLD05-ORG05] put into the tender, then there was a problem. This happened time and time and time again, and it's still happening now.

BLD05-ORG02-INT01: To what extent did you experience this problem?

BLD05-ORG02-REP01: It happened with everything! Everything! The bricks changed. The bricks changed because of cost. You see my job, because of the financial . . . I mean, obviously, we were aware that there was fairly serious financial constraints on the project. My job, as on every job, is to make sure that when you have got to pare down – cost-wise – you still get something that looks of a reasonable quality, and it satisfies BLD05-ORG02, and it satisfies the client. It's the balance. So I tell you what: we changed all the bricks; we changed all the cladding; we changed all the eaves details. So that's basically the entire external skin changed. But it still looks more or less what it was going to look like. In my mind's eye it still looks, from a distance, what it was supposed to look like. But close-up it is different. But it doesn't really matter. As far as I am concerned, it's still a good quality project. That involved us . . . as far as I am concerned . . . that cost BLD05-ORG02 an awful lot of money. I continually went to BLD05-ORG02-REP02 and said: "This is costing us a lot of money, you know? I am having to do this time and time and time again." It takes a long time. It took an awful long time. And it's still taking time.

BLD05-ORG02-INT01: To what extent did the commercial property developer [BLD05-ORG01] realize that the primary construction contractor [BLD05-ORG05] was trying to reduce the quality of the building project?

BLD05-ORG02-REP01: Yeah, yeah there was. It was more obvious internally. For instance, the carpets. I thought: "Well, these carpets are crap, I am not having these." So then we had to find something else, or I had to find something else. But the client [BLD05-ORG01] would say: "Surely you can't have expected us to have put up with that." He [BLD05-ORG01] says that to the contractor [BLD05-ORG05], and the contractor [BLD05-ORG05] says: "Well, you were presented with this outline specification document, which was in January last year." But it didn't say anything. All it said was: "Good quality carpets." Who decides what a good quality carpet is? What tended to happen was I would ring BLD05-ORG01-REP01 and say: "This carpet is crap. These kitchen units are hopeless. It's not good enough and I don't think it's appropriate for the project." So he [BLD05-ORG01-REP01] would say to me, or say to BLD05-ORG05, or both, in one of the meetings: "Surely you can't have expected us to accept these. These are not high quality." And they'd [BLD05-ORG05] say: "Well, you've had the specification document." And he'd [BLD05-ORG01-REP01] say: "Well, that only said good quality carpet, and this isn't good quality carpet." And they'd [BLD05-ORG05] say: "Well, I think it is." You are like this all of the time. It is like a tennis match – back and forwards, back and forwards – and at the end of the day it was always me that had to find something that was appropriate. I had to negotiate . . . well, not negotiate, but I was in continuous discussion with BLD05-ORG03. BLD05-ORG03 had to be involved, so that they could check out everything that BLD05-ORG05 were saying, because BLD05-ORG05 were saying: "Sorry, that carpet is too expensive, you can't have it." So then I would find another one. Then I would go to BLD05-ORG03 and say: "Can you check this out? Are they telling the truth? Is that right? Is that carpet too expensive?" They [BLD05-ORG03] would, on certain occasions, say: "No, that carpet is affordable. I don't know what they're talking about?" So I would go back again and back again and back again. Eventually, BLD05-ORG01 put more money in – later on. But it cost us, as far as I am concerned, it cost us a lot of money. But, apparently, the company still did quite well out of this project, which BLD05-ORG02-REP02 is obviously quite pleased about. I think with him [BLD05-ORG02-REP02] having set up the fee arrangement; I think he was always fairly relaxed. He [BLD05-ORG02-REP02] was always pretty confident about the fee situation. But, I mean, to give him [BLD05-ORG02-REP02] credit, he's . . . I suppose he's . . . I think he said something last week: "It's a tribute to me and my management of the project that's done well." Which is

nice. BLD05-ORG02-REP02 is like that, you know, he does give compliments fairly regularly. Which is not something you get often – which is something I quite like about him [BLD05-ORG02-REP02].

BLD05-ORG02-INT01: What date did construction work start on site?

BLD05-ORG02-REP01: April the 9th, 19##.

BLD05-ORG02-INT01: What was the original duration of the building project?

BLD05-ORG02-REP01: Twelve months.

BLD05-ORG02-INT01: What was the actual duration of the building project?

BLD05-ORG02-REP01: Well, it's not finished yet, as you can see [pointing to a plan drawing that is unfolded on the interview room table]. But units one to five were handed over at Christmas, which was four months ahead of schedule. And the rest of them, six to eight, will be handed over in about a month's time, which is two months ahead of schedule. Overall, it's fairly quick for such a big job. But, apparently, with this contract – I don't know in reality what would have happened if they'd [BLD05-ORG05] gone over time – but apparently they couldn't go over time. The project had to be a year's duration, and it couldn't run over. As far as I am aware, that is something to do with the Enterprise Zone situation. I think that's why?

BLD05-ORG02-INT01: What type of construction contract was used?

BLD05-ORG02-REP01: JCT 80 private with approximate quantities.

BLD05-ORG02-INT01: Who was the contract administrator?

BLD05-ORG02-REP01: Me.

BLD05-ORG02-INT01: Did the commercial property developer [BLD05-ORG01] or your organization select the construction cost consultant [BLD05-ORG03]?

BLD05-ORG02-REP01: Well, to be honest, I wish I knew this myself. Somehow, presumably, there was a contact between BLD05-ORG01 and BLD05-ORG02, from what I gather. I don't know whether BLD05-ORG02-REP02 knew BLD05-ORG01-REP01, or what, or whether BLD05-ORG01-REP01 just walked in off the street. I think it might have been something like that. It might have been something to do with the estate agents, but I am not sure. But from what . . . I think we put the names forward – the other

consultants – BLD05-ORG04 and BLD05-ORG03, I think. BLD05-ORG02-REP02 could tell you that, because he did it.

BLD05-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD05-ORG03] did your organization possess?

BLD05-ORG02-REP01: That's a good question, yes. Yes, but I don't know whether it was . . . I know, since I came here, we've worked with them, but whether we've worked with them before 19##, I don't know. But I would imagine, yes, without a doubt, to be honest.

BLD05-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD05-ORG03] did the commercial property developer [BLD05-ORG01] possess?

BLD05-ORG02-REP01: I would imagine because the developer [BLD05-ORG01] is from . . . well, I was going to say, because the developer [BLD05-ORG01] is from \*\*\*\*\*, no, I would imagine not. But BLD05-ORG03 has also got an office in \*\*\*\*\*, so they may have done. They may have known them. But I would imagine not. But again, BLD05-ORG02-REP02 could tell you for certain, I would have thought.

BLD05-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD05-ORG03] did you possess?

BLD05-ORG02-REP01: I have never worked with them before.

BLD05-ORG02-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD05-ORG02-REP01: Well, the structural steelwork subcontract was a special part of the project, because there was significant design in it. But I suppose there is always design work in anything that you subcontract out, isn't there? I mean, even the windows. I mean, I . . . we obviously put together a specification and draw the elevations and do the window schedule. But at the end of the day, the specifics of the design quality are determined by the subcontractor [secondary construction contractor]. But the structural steelwork design was critical to the overall project.

BLD05-ORG02-INT01: How was the structural steelwork secondary construction contractor [BLD05-ORG06] appointed?



BLD05-ORG02-REP01: It's such a ridiculous job this! It all had to do with the stop-start nature of the thing. BLD05-ORG01-REP01, because he still really didn't know if the job was going to happen when we were at least halfway through the production information last November, stopped the job. But we didn't stop; we carried on. But BLD05-ORG04 stopped. Throughout the job BLD05-ORG04, I don't think, have never really wanted to do any work on the project, because I think they have had a problem with their fee agreement. They [BLD05-ORG04] don't seem to be making any money; they seem to be whinging all of the time about losing money. And the steelwork design, when it was done, wasn't done in detail. But they [BLD05-ORG05] sent it out for prices and it came in too expensive. So BLD05-ORG05 said they would be better to get it done on a sort of design and construct basis. So they [BLD05-ORG05] went to BLD05-ORG06 and it came in cheaper. But this is where this little link comes in [pointing to the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.11 on page 328)], BLD05-ORG04 were still employed as the project engineers [structural engineering design consultant]. So BLD05-ORG06 had to satisfy them. It wasn't as straightforward as BLD05-ORG06 producing a scheme and Bob's-your-uncle, that's it – it's cheaper. They [BLD05-ORG06] had to satisfy BLD05-ORG04, and there were horrendous problems, because BLD05-ORG04 weren't satisfied. Presumably it wasn't out of spite . . . that they . . . basically, BLD05-ORG04 had been told that their design wasn't economical, right! So that's why they [BLD05-ORG05] went out and the other one came in cheaper. So they [BLD05-ORG05] thought: "That's it." But BLD05-ORG04 wouldn't let them [BLD05-ORG06] get away with half of the calculations. So they [BLD05-ORG06] had to redesign and redesign, bump-up the sections of the steelwork and whatever else. It was a different philosophy altogether to theirs [BLD05-ORG04], and I think, in my opinion, they [BLD05-ORG04] felt they'd had their noses put out. So they [BLD05-ORG04] made them [BLD05-ORG06] beef-up all of the steelwork and, I think, that at the end of the day, the price was what it was from BLD05-ORG04 in the first place. So all that rigmarole involved us in a phenomenal amount of work, because we had already been through the steelwork sizes with BLD05-ORG04 to get them the way we wanted them to be. Then we had to check all of BLD05-ORG06's again, and BLD05-ORG04 did again. They [BLD05-ORG04] subsequently, a few weeks ago, have put in a fairly large fee claim. But we haven't. BLD05-ORG02-REP02 is fairly relaxed about it, because, I think . . .

because of the overall fee arrangement. He [BLD05-ORG02-REP02] seems fairly relaxed with it. BLD05-ORG02-REP02 always says he takes a longer-term view, because phase two is coming up. But BLD05-ORG04 can't see beyond the end of their noses.

BLD05-ORG02-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD05-ORG05] did the commercial property developer [BLD05-ORG01] possess?

BLD05-ORG02-REP01: None, I would have thought.

BLD05-ORG02-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD05-ORG06] did the primary construction contractor [BLD05-ORG05] possess?

BLD05-ORG02-REP01: I would have assumed they'd had some.

BLD05-ORG02-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD05-ORG06] did your organization possess?

BLD05-ORG02-REP01: None. I don't know whether BLD05-ORG02 have worked with them or not before. But again, even if we have, they're just a subcontractor [secondary construction contractor], you know, so it doesn't really matter. Personally, I didn't have any problems with them. I had far more problems with BLD05-ORG04 than BLD05-ORG06.

BLD05-ORG02-INT01: Did the commercial property developer [BLD05-ORG01] specify, or did your organization recommend, the structural engineering design consultant [BLD05-ORG04] for inclusion within the building project design team?

BLD05-ORG02-REP01: I think BLD05-ORG02-REP02 recommended them.

BLD05-ORG02-INT01: How much previous experience of working with the structural engineering design consultant [BLD05-ORG04] did your organization possess?

BLD05-ORG02-REP01: Yes, BLD05-ORG02 has worked with BLD05-ORG04 a lot. We're working with them at the moment and have been for a long time now – on an express rail link. So it's an important contact.

BLD05-ORG02-INT01: How much previous experience of working with the structural engineering design consultant [BLD05-ORG04] did you possess?

BLD05-ORG02-REP01: Yes, in a small way . . . a job I worked on here . . . not long after I started. But then I didn't carry that project through; I went onto something else. But it was actually built, with the same people, but not with me involved. But it did happen with someone else in the office.

BLD05-ORG02-INT01: How much previous experience of working with the representative of the structural engineering design consultant [BLD05-ORG04-REP01] did you possess?

BLD05-ORG02-REP01: None.

BLD05-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD05-ORG05] did the commercial property developer [BLD05-ORG01] possess?

BLD05-ORG02-REP01: BLD05-ORG05 is not a big contractor [primary construction contractor] in this area. They're really, I think . . . they've got a large base in \*\*\*\*\*. This is just me trying to piece bits together that I know. But I think BLD05-PAR01 wanted them to become a bigger player in this area, I think, if I am putting two and two together correctly? If BLD05-ORG01 started a development in this area, it would make sense for them to use BLD05-ORG05, because it helps BLD05-ORG05. BLD05-ORG05 seems to be doing pretty well now. They seem to be getting more projects around the place. They've actually got something on \*\*\*\*\*  
\*\*\*\*\* at the moment. So they seem to be . . . they seem to be on the up.

BLD05-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD05-ORG05] did your organization possess?

BLD05-ORG02-REP01: None, I don't think so? They were too small.

BLD05-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD05-ORG05] did you possess?

BLD05-ORG02-REP01: None. I knew they existed, but that is all.

BLD05-ORG02-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG02-REP01: The thing about BLD05-ORG05 is . . . they've got . . . they've got BLD05-PAR01 behind them, so it's unlikely that they're going to go down the dinky! But recent information, recent stories that have been in the newspapers – financial newspapers – suggest that BLD05-PAR01 are pulling their horns in. We think there's a chance that they may just get rid of BLD05-ORG01 altogether. So I don't know, really, if there's many people that work for them at all! It's just the development arm, but they might pack-it-in, because BLD05-ORG05 have been rationalized and shut down in the South. So, anyway, we think there is a possibility that that might happen. But in terms of . . . I think . . . I think I would have to say, *very reputable*.

BLD05-ORG02-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG02-REP01: *Reputable*.

BLD05-ORG02-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG02-REP01: If it's my . . . purely my opinion of how I think they've performed, then I think they're absolutely hopeless. I would say it's got to be a *1*. This is what I was getting at before. I think their reputation is good. Generally, if you asked . . . if you went to an architect [architectural design consultant] who possibly hadn't worked with them and they knew the name BLD05-ORG04 – they're a massive company, they're all over the world – they'd say they are a big company them: "*Very reputable*." I don't know if it was just this office, but they're not managed very well. BLD05-ORG02-REP02 has had chats with their top man on 2 or 3 occasions about their performance, and about particular individuals in the company. They're a nightmare. They're an absolute nightmare to work with. Oh . . . I will be generous and give them 2 – *not very reputable*.

BLD05-ORG02-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG02-REP01: I would say 5 – *very reputable*.

BLD05-ORG02-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG02-REP01: Don't know anything about them, really, to give an opinion. I would just say 3 – *neither reputable nor disreputable*. I don't know enough about them to be honest.

BLD05-ORG02-INT01: In which case, I shall not ask you any further questions about the structural steelwork secondary construction contractor [BLD05-ORG06].

BLD05-ORG02-REP01: I would – they're an extra, really.

BLD05-ORG02-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG02-REP01: From my involvement to now?

BLD05-ORG02-INT01: Yes, that is correct.

BLD05-ORG02-REP01: I would say, *several times weekly*. Almost once every couple of days, I would have thought, on average.

BLD05-ORG02-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG02-REP01: Probably *once weekly*, I would have thought.

BLD05-ORG02-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG02-REP01: Again, once we were into the production information, it was *several times daily*. But overall, if you want to average that over the project, it would be *once weekly*. But that's the most important bit [pointing to *Scale B* – *several times daily* – 7]. I would say, overall, it was *once daily*.

BLD05-ORG02-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG02-REP01: *Several times daily*, when it was on site. But then, before it was on site – the year-and-a-half or whatever, during the build-up – then there was less contact than that, obviously. It was then, probably, *once weekly*, if that.

BLD05-ORG02-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG02-REP01: I don't know. Well, we were on the same line in that we both wanted a good project to come out of it. The question was: "How were we going to do that?" Because,

obviously, it was tight, very tight – financially. I am trying to think when we did have conflict with them. The main areas of disagreement with the client [BLD05-ORG01] was his inability to make a decision, basically. But we don't know what was behind that, really. We don't know whether it was hesitancy by BLD05-PAR01 coming back – not letting them push the button on the project. So that caused problems! Really, we were working at risk for a long time. Even when we were halfway through, or even three-quarters of the way through the production information period, they stopped it. But we carried on, because we gathered it was going to happen. So that was one area of fairly major irritance. I would say, *rarely*. As a person he's [BLD05-ORG01-REP01] a nice guy, but he's not really a decision-maker. But you don't know what is behind that. I would say, *rarely*. It's got to be *rarely*. It couldn't be *quite often*.

BLD05-ORG02-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG02-REP01: I would say, *rarely*, again.

BLD05-ORG02-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG02-REP01: *Very often*.

BLD05-ORG02-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG02-REP01: It's difficult. I would say, *quite often*. Obviously, they understood the nature of the project, but contractors [primary construction contractors] are contractors [primary construction contractors] . . . but they . . . they were fairly helpful. They knew what we were trying to do. They are on the site now – they live there. If something really poor went up, then they had to live with that. And they've got neighbours all around who would say: "Well, this is a really crummy development isn't it? You did it, didn't you?" So they always had that to think about. This is the biggest job they've ever done in this area, by a street. So their reputation hangs on this project, which is very important in the overall context of the project – certainly in what you're trying to do. It has a big bearing on everything.

BLD05-ORG02-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG02-REP01: *Never.*

BLD05-ORG02-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG02-REP01: I would say, *rarely*.

BLD05-ORG02-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG02-REP01: *Very often! Very often!* Have you not got a 9 or a 10!

BLD05-ORG02-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG02-REP01: It's a tricky one that. It's between 2 and 3. It's very unusual that, for a contractor [primary construction contractor], because normally it would be a 5, without a shadow of a doubt.

BLD05-ORG02-INT01: Why do you say that?

BLD05-ORG02-REP01: Because it always is. They're a pain in the backside! They're a nightmare. They're not interested in the quality of the design or anything. All they're interested in is how much they can screw out of the job. This is what makes this job unique. I would be interested to see what BLD05-ORG05 would be like on a normal job, when they've got nothing to do with the developer [commercial property developer] or anything like that – when they just tendered to win the job. I would be interested to see that. But, apparently . . . apparently, they've never had a dispute on all of the jobs they've done up here. They've never put a claim in, which is interesting. That's my kind of contractor [primary construction contractor] that! I mean, it does make life so much easier and the project is so much easier. Anyway, disputes with them . . . I would say, *rarely* – 2. You see the reason for that is the connection with the client [BLD05-ORG01]. We were all in it together. We were all in it together from five or six years ago. We all knew what we wanted. They knew they were going to build it. We had to find a price for it. The only area for problems was the fact that it went ahead so quickly and no-one was able to really tie it down. So that was why the disputes would've happened and did happen. But they were relatively minor. I think we've all, since it's finished – well it's virtually finished – it's virtually running itself now. I mean, I am not really doing anything there, it's just happening – it's like a design and build – it's amazing.

BLD05-ORG02-INT01: For what reasons would you say this has happened? For instance, could it have been a result of the long pre-construction or design sub-process – enabling effective relationships to be established – or could it have been the result of the close relationship between the commercial property developer [BLD05-ORG01] and the primary construction contractor [BLD05-ORG05]?

BLD05-ORG02-REP01: Both, definitely both!

BLD05-ORG02-INT01: What professional services did your organization provide during the building project?

BLD05-ORG02-REP01: We were responsible for the landscaping. We have a landscaping consultant [landscape architectural design consultant] who is a branch, I suppose, of the company in \*\*\*\*\*. We were responsible for the architectural design, project management, contract administration, and interior design. Interior design is something I am interested in and, in my opinion, . . . in my opinion, they have got a hell of a good project for a fairly, relatively, small amount of money. I think, especially the entrance to the office units, I think they are getting a very good quality product.



## 24.2 INTERVIEW TRANSCRIPT BLD05-TRAN02

Organization Role: Construction Cost Consultant

Organization Code BLD05-ORG03

Respondent Role: Boundary Representative for BLD05-ORG03

Respondent Code: BLD05-ORG03-REP01

Interviewer Code: BLD05-ORG03-INT01

BLD05-ORG03-INT01: Who was the client organization?

BLD05-ORG03-REP01: BLD05-ORG01.

BLD05-ORG03-INT01: What type of organization was the client [BLD05-ORG01]?

BLD05-ORG03-REP01: They are a commercial developer [commercial property developer].

BLD05-ORG03-INT01: Why did the commercial property developer [BLD05-ORG01] decide to commission the building project?

BLD05-ORG03-REP01: The site is a site of an existing or old steelworks, which BLD05-PAR01 had. So they'd [BLD05-PAR01] had this site on their books for eighty or ninety years, I suspect. I guess the decline of the steel industry has rendered it a dead site. It's also over the last fifteen years that the area has been built-up, and this has earmarked it as a developable plot of land, if you like. So they [BLD05-ORG01] put a business park, for the want of a better description, down there. The reason they [BLD05-ORG01] have done it is to make money – as a developer [commercial property developer] would.

BLD05-ORG03-INT01: How much previous experience of the building process did the commercial property developer [BLD05-ORG01] possess?

BLD05-ORG03-REP01: I think there were areas of the client's [BLD05-ORG01] involvement that were less than ideal, but I think he [BLD05-ORG01-REP01] . . . because of the particular relationship between BLD05-ORG01 and BLD05-ORG05, which was an odd arrangement, I think there were individuals in the parent company – in BLD05-PAR01 – who were influencing the two parties far more than perhaps they should have. So they . . . the targets that

they were both given in terms of development profit on the one hand and the construction profit on the other, were often at conflict with each other, and the overall profit that BLD05-PAR01 was trying to achieve was probably not attainable.

BLD05-ORG03-INT01: Did these internal or intra-organizational conflicts that you have just described result in any problems for the other organizations that were involved during the design and construction of the building project?

BLD05-ORG03-REP01: Yes, I think the developer [BLD05-ORG01], as developers [commercial property developers] do, wanted to minimize his exposure up front. He [BLD05-ORG01] wanted to have a committed scheme before he was committed to paying an awful lot of fees for the design works, primarily. We [BLD05-ORG03] were put in a position of having to put together a pricing document on information that was far too sketchy. So we [BLD05-ORG03] did as well as we could. I mean, I gave advice to the main contractor – BLD05-ORG05 – to the effect that a particular route to arrive at this document was better in terms of risk control. But he [BLD05-ORG05] was not in a position, he thought, to accept that, because of discussion he was having with his parent company [BLD05-PAR01]. It transpired that we [BLD05-ORG03] had to produce the best set of bills of quantities, as it was, that we could from the information. So we [BLD05-ORG03] were sort of stuck in the middle, almost, of a debate between two parties, who ordinarily wouldn't be debating in the way they were. If that makes any sense?

BLD05-ORG03-INT01: Yes, it does. I gather that the relationships between the parent organization [BLD05-PAR01] and the commercial property developer [BLD05-ORG01] and the primary construction contractor [BLD05-ORG05] were complex and rather difficult to contend with?

BLD05-ORG03-REP01: It was certainly difficult, yes! It's interesting, and then, again, I guess this is confidential; it's interesting the comments that are made now with the benefit of hindsight are that, certainly, the architect [BLD05-ORG02] and ourselves [BLD05-ORG03] should have been far firmer in our advice to the client [BLD05-ORG01] – that, I think, is almost unfair. There is only so far that you can guide your client that he will turn that round to a statement of some sort, and that is precisely what he [BLD05-ORG01] did do.

BLD05-ORG03-INT01: How much previous experience of working with the commercial property developer [BLD05-ORG01] did your organization possess?

BLD05-ORG03-REP01: We have a track record with BLD05-ORG01 that goes back, probably, fifteen years, or something of that nature. But in the North-East this is the first project that we've worked with them. But it does go back four years from now – five years from now, in fact. The project, in its inception, was very slow and hesitant, until such a point where the button was pressed, for want of a better phrase, at a most inopportune moment. It was walk and stroll for three-and-a-half years and then sprint like hell for three months. So it wasn't very well done, in reality. But we have worked with BLD05-ORG01 on several properties in the midlands and in the south of England.

BLD05-ORG03-INT01: How much previous experience of working with the commercial property developer [BLD05-ORG01] did you possess?

BLD05-ORG03-REP01: None. I had no previous experience.

BLD05-ORG03-INT01: How did your organization become involved with the commercial property developer [BLD05-ORG01] during the building project?

BLD05-ORG03-REP01: The developer [BLD05-ORG01-REP01], himself, approached one of the partners in our \*\*\*\*\* office – who he has a working relationship with. They had some preliminary discussions of a scope of services and fees that we might offer, and it was immediately apparent then that the best office to provide that service to them would be the \*\*\*\*\* office. It was passed up to me then.

BLD05-ORG03-INT01: To what extent does your organization exchange information between regional offices?

BLD05-ORG03-REP01: We do try, wherever possible, to operate in a corporate manner, such that if a . . . the practice is structured into groups: three groups. There's a \*\*\*\*\* group; a \*\*\*\*\* group; and a \*\*\*\*\* group, and we are part of the \*\*\*\*\* group. If there is a client in \*\*\*\*\* who has a job in \*\*\*\*\*, then we will make a corporate decision that is far more sensible for everybody concerned to have the job carried out by the \*\*\*\*\* group.

BLD05-ORG03-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD05-ORG03-REP01: Well, it was on two levels, really. The involvement that I had was primarily pre-contract and involved not just cost planning, but some fairly strategic procurement advice; some of which was taken onboard, some of which wasn't. At the other level it was strictly a technical quantity-surveying job of variations, valuations, financial reports and final accounts. BLD05-ORG01 very much see us as financial managers [construction cost consultants], not just quantity surveyors. They [BLD05-ORG01] do expect us to fulfil a fairly strategic role. So in that respect, they [BLD05-ORG01] are a good client, as far as I am concerned, because that is where QS should be.

BLD05-ORG03-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD05-ORG03-REP01: I was responsible for the project. I had one of our senior surveyors [BLD05-ORG03-REP02] working under me. I was the primary point-of-contact with the client [BLD05-ORG01] and with the partner [BLD05-ORG02-REP02] responsible in BLD05-ORG02. The project architect [BLD05-ORG02-REP01] had direct contact to my surveyor [BLD05-ORG03-REP02]. The . . . I guess, from a self-critical point-of-view, we did make a change to the staffing halfway through the job, for probably the right reasons. But, outwardly, I think it could have been seen as a bit of a weakness, because we had a surveyor [construction cost consultant] who was over-stretched in many ways. And I think his experience was borderline as to be adequate or not to run this job. Because it was a fairly straightforward job, but . . . I think, the relationship between the developer [BLD05-ORG01] and the contractor [BLD05-ORG05] and the nature of how we had arrived at where we were, meant that a fairly straightforward job became something other than that. So we changed, or I changed, the resourcing from a, sort of, intermediate surveyor [construction cost consultant] – five years qualified – to a more senior guy who's been qualified for thirty-five years. All the right reasons behind that decision, I thought, and it did actually improve things. But it did leave the project architect [BLD05-ORG02-REP01] dealing with a bloke [BLD05-ORG03-REP02] who knew next to nothing about the job. And for a short number of weeks – no more than that – it did leave him [BLD05-ORG02-REP01] having to explain things that we ought to have known anyway. And that criticism has been levelled at me already, and I think, probably, justifiably so. But it's a balance, really, between accepting that criticism and looking at the benefits that it brought. And I think it did bring benefits. It is interesting that we are

currently debating the next phase of this job and I am not proposing a different arrangement.

BLD05-ORG03-INT01: Will you be utilizing the experience of the final and more senior construction cost consultant for the next phase?

BLD05-ORG03-REP01: Well, that I am not sure of. There will be . . . I think it may be a different surveyor [construction cost consultant]. But there will be a surveyor [construction cost consultant] working for me, and I will be the primary point-of-contact; albeit the technical day-to-day work will be carried out by somebody else. And I think that's a perfectly valid arrangement, personally.

BLD05-ORG03-INT01: How would you describe the building project?

BLD05-ORG03-REP01: Well, it was primarily a business park, which . . . it was a combination of B1 and B2 units: offices and sheds, for want of a better word, which were to be taken onboard by small manufacturing companies. Something like that! An open warehouse, perhaps? Or one's an open building; one's an office building – to be fitted-out. Very simple portal frames – clad buildings. Very straightforward.

BLD05-ORG03-INT01: Were there any unusual or unforeseen site or design difficulties?

BLD05-ORG03-REP01: Yeah, there were. The site was . . . from its history it was always going to be . . . it's on the \*\*\*\*\* of the \*\*\*\*\*, where the knowledge that exists in the area automatically suggests the ground conditions are going to be very poor; and they were. And it's also the site of previous industry, so contamination was likely to be an issue; and it was. The contamination was marginally worse, I would say, than the investigation threw up. The ground conditions were significantly worse and the piling depths, for instance, were substantial, compared to what was originally envisaged. So, I think, the ground conditions did cause problems and were handled, almost, adequately. But not quite!

BLD05-ORG03-INT01: What date did construction work start on site?

BLD05-ORG03-REP01: It started on site around about January last year.

BLD05-ORG03-INT01: What was the original duration of the building project?

BLD05-ORG03-REP01: It was to be 15 months. It was due to finish Easter of this year and it's likely to be slightly ahead of that. Well, it is ahead of that – it's finished now!

BLD05-ORG03-INT01: What type of construction contract was used?

BLD05-ORG03-REP01: JCT 81 with contractor's design was how it was managed. Actual contract was a JCT 80. Now the reason behind that was this contract was first put in place in 19## – at the end of the Enterprise Zone – it had to be an establish contract to retain the Enterprise Zone status. It was a bit of a hybrid contract, in many ways, as the relationship between the developer [BLD05-ORG01] and contractor [BLD05-ORG05] – being the same organization – suggested that it was almost certainly going to be some sort of hybrid. The main contractor [BLD05-ORG05] assumed a slightly, well, a totally elevated position in reality. But it worked.

BLD05-ORG03-INT01: To what extent do you think the nature of this hybrid construction contract contributed to problems during the building project?

BLD05-ORG03-REP01: I think it did. I think at the beginning they were on several levels; perhaps the most significant being that there was potential, and I think it's no more than that, that the quality of the job could have been dictated too much by the contractor [BLD05-ORG05] who was financially motivated. That, I think, was prevented by a lot of hard work by the project architect [BLD05-ORG02-REP01], who spent a hell of a lot of time debating alternative specifications, alternative detailing, where, really, that ought not have been necessary. I think on a cost point-of-view a lot of these suggested changes by the contractor [BLD05-ORG05] were actually taken onboard, some of which have and some of which haven't been confirmed, formally. All we, as the quantity surveyors [construction cost consultant], were advised of, were the extras. I am sure there were savings involved and we didn't ever get to hear about that. So I think the arrangement did cause problems. It was . . . I think a comment made by the developer [BLD05-ORG01], which I thought summed it up quite neatly, was that it was: "A very friendly project." Which caused him [BLD05-ORG01-REP01] concern, as projects aren't normally friendly – they're often confrontational! I think the formality of the contractual relationships was played down too much, I think. We, the design team, or they, the design team – however, I am not a designer – but the design team [BLD05-ORG02 and BLD05-ORG04] allowed the contractor [BLD05-ORG05] to take too much control.

BLD05-ORG03-INT01: What tendering procedure was used?

- BLD05-ORG03-REP01: No. No. That was a negotiated contract, albeit the competition came from the subcontract [secondary construction contract] pricing. Obviously, the market was tested in all of the subcontracts [secondary construction contracts]. Understanding the arrangement – BLD05-ORG05 and BLD05-ORG01 – there really wasn't any vested interest in BLD05-ORG05 trying to screw the deal, because they were taking money out of their own client's [BLD05-ORG01] pocket, in effect.
- BLD05-ORG03-INT01: How much previous experience of working with the architectural design consultant [BLD05-ORG02] did your organization possess?
- BLD05-ORG03-REP01: Not very much. We have worked with them on jobs which have gone as far as a feasibility/cost planning stage, but that's about it. The only other contract we've had with them is where we were employed as agent on a job and they were architects [architectural design consultants] who were novated to the contractor [primary construction contractor]. So it's working experience, but the boot was on the other foot, as it were, and they were responding to us.
- BLD05-ORG03-INT01: How much previous experience of working with the architectural design consultant [BLD05-ORG02] did you possess?
- BLD05-ORG03-REP01: I was involved in a fairly small – a couple of million quid's worth – housing scheme that got as far as feasibility. But the other project I wasn't involved in, personally.
- BLD05-ORG03-INT01: How much previous experience of working with the representative or the architectural design consultant [BLD05-ORG02-REP01] did you possess?
- BLD05-ORG03-REP01: No previous experience.
- BLD05-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD05-ORG04] did your organization possess?
- BLD05-ORG03-REP01: Very little, I suspect. Honestly, I don't know! I think it's the only job we've worked with them in this area. So, I think, they are a new consultant as far as we are concerned.

BLD05-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD05-ORG05] did your organization possess?

BLD05-ORG03-REP01: Next to none. In this area it's the first job we've worked with them, and I think this is the biggest job they've done in this area. They are not a major player, particularly, albeit they are growing. So they're fairly new in this area, and I don't believe we've worked . . . there may be some other jobs we've done with BLD05-ORG01 in the Midlands where we've worked with BLD05-ORG05. But I am not terribly familiar with them, to be frank.

BLD05-ORG03-INT01: To what extent did the primary construction contractor [BLD05-ORG05] impose upon your roles and responsibilities during the building project?

BLD05-ORG03-REP01: I don't think *impose* is the right word. They *assumed* a position that, I think, wasn't correct in terms of everything they told us about was an extra. I think that if there is a criticism of the arrangement, it is that BLD05-ORG02 and ourselves allowed them [BLD05-ORG05] to assume this elevated position that I explained before, rather than keeping the clear lines in the contract in place. So the client – BLD05-ORG01 – has actually suggested that . . . and I think for the remainder of the project – bearing in mind that the final accounts aren't done yet – so the contractor [BLD05-ORG05] may not have got away with as much as he thinks. And certainly on the second phase we are, I hope anyway, going to adopt a more neutral position in terms of the contract.

BLD05-ORG03-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG03-REP01: I would say about 4. I think I have expressed concerns about the way the thing turned out, but I don't think they were related, particularly, to reputation.

BLD05-ORG03-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG03-REP01: I would say 5, for that.

BLD05-ORG03-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG03-REP01: 2.

BLD05-ORG03-INT01: The primary construction contractor [BLD05-ORG05]?



BLD05-ORG03-REP01: Again, I would say 2/3 – 3 being generous and 2 being slightly hard.

BLD05-ORG03-INT01: Which of these two responses would you say was most appropriate?

BLD05-ORG03-REP01: I would go for 3.

BLD05-ORG03-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG03-REP01: I would say 2 – *once monthly*.

BLD05-ORG03-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG03-REP01: I would say *once weekly* – 4.

BLD05-ORG03-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG03-REP01: I would say probably 1 – *less than once monthly*.

BLD05-ORG03-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG03-REP01: I would say 4, for that. At least 4!

BLD05-ORG03-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG03-REP01: I would say 2 – *rarely*.

BLD05-ORG03-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG03-REP01: Again, I would say 2.

BLD05-ORG03-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG03-REP01: Bearing in mind the infrequent contact that we had with them, I would say, again, 2.

BLD05-ORG03-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG03-REP01: I think we have a lot to resolve with them yet, so I would say *quite often* – 3.

BLD05-ORG03-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG03-REP01: I would say *quite often* – 3, a few of those.

BLD05-ORG03-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG03-REP01: I would say *rarely* – 2.

BLD05-ORG03-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG03-REP01: *Quite often* – 3, I'd guess. This is qualified by the fact that we didn't have that much contact with them, but there was quite a lot of conflict nonetheless.

BLD05-ORG03-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG03-REP01: I would say 4.

BLD05-ORG03-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD05-ORG03-REP01: Quantity surveying, obviously, or cost management as we prefer to call it; project management; building surveying; taxation – quite a wide range, really. I would say anything that doesn't involve design, I would say, but that involves construction finance.

BLD05-ORG03-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD05-ORG03-REP01: Currently, we operate in every sector there is, but not in this office. Nationally, I would be surprised if there is a sector that we don't operate in. Regionally, we . . . I would say the biggest exception we have is the petrochemical industry. We don't have a foothold in that industry at all in this area. The practice is quite large. I am sure you already know that. We do have departments operating in most sectors.

BLD05-ORG03-INT01: How many years has your organization been established in this region?

BLD05-ORG03-REP01: Well, I would estimate it is something in the region of between twenty-six and thirty years. I would tend to guess it was around thirty years.

## 24.3 INTERVIEW TRANSCRIPT BLD05-TRAN03

Organization Role: Structural Engineering Design Consultant

Organization Code BLD05-ORG04

Respondent Role: Boundary Representative for BLD05-ORG04

Respondent Code: BLD05-ORG04-REP01

Interviewer Code: BLD05-ORG04-INT01

BLD05-ORG04-INT01: During the interview I would like to ask you some questions regarding BLD05-ORG04's relationships with the construction-related organizations that formed the construction project organization during the realization of BLD05. Do you feel quite happy for me to continue with the interview?

BLD05-ORG04-REP01: Yes, that is fine. What I would say is that we weren't simply structural engineers [structural engineering design consultant]. We were structural, infrastructure and environmental engineers, which is quite a big . . . quite a large role, really.

BLD05-ORG04-INT01: Yes. The architectural design consultant [BLD05-ORG02-REP01] did outline your roles and responsibilities to me. I believe you were appointed as the project engineering consultant.

BLD05-ORG04-REP01: Yes, that is correct. I wanted to clarify that it wasn't just structural engineering [structural engineering design].

BLD05-ORG04-INT01: How did your organization become involved with the commercial property developer [BLD05-ORG01] during the building project?

BLD05-ORG04-REP01: We became involved via an introduction by BLD05-ORG02 on this instance, whereby the developer [BLD05-ORG01] approached BLD05-ORG02 directly, and BLD05-ORG02 had suggested that BLD05-ORG04 should be involved. That was in the order of five or six years ago.

BLD05-ORG04-INT01: How much previous experience of working with the commercial property developer [BLD05-ORG01] did your organization possess?

BLD05-ORG04-REP01: None.

BLD05-ORG04-INT01: It was a new relationship?

BLD05-ORG04-REP01: Yes, that is correct.

BLD05-ORG04-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD05-ORG04-REP01: Right, our role, basically, was that of structural engineer [structural engineering design consultant], infrastructure engineer [infrastructure engineering design consultant], and environmental engineer [environmental engineering consultant], whereby we were responsible for designing all the structural elements of the building, i.e., the foundations. We were involved, initially, in the superstructure design of the structures. However, that changed slightly because of the main contractor's [BLD05-ORG05] view of foreseeing cost savings by letting that to a fabricator [BLD05-ORG06]. However, that's another story.

BLD05-ORG04-INT01: To what extent do you think the decision by the primary construction contractor [BLD05-ORG05] to involve the secondary construction contractor [BLD05-ORG06] with the structural steelwork design affected your roles and responsibilities as the structural engineering design consultant?

BLD05-ORG04-REP01: I mean, basically, the job was on a knife-edge whether it was to go or not. The contractor [BLD05-ORG05] came at the time, when the price was being negotiated between BLD05-ORG05 and BLD05-ORG01, and suggested that his fabricator [BLD05-ORG06] saw significant cost savings by coming up with an alternative design. We obviously wanted the job to go. We didn't want to be the nigger in the woodpile preventing the job from proceeding. We were prepared to go along with that, providing that we could satisfy ourselves that the structures were adequate – via checking. We actually did do that. They did go to fabricator [secondary construction contractor] design. But, unfortunately, it cost us a lot of money, because we thought that the fabricator [BLD05-ORG06] wasn't really looking at things in the same sort of level that we would look at the frame design.

BLD05-ORG04-INT01: Do you think this affected the quality of the structural design?

BLD05-ORG04-REP01: No, because I think we actually insisted that it wouldn't suffer. We were carrying some liability, but we had quite

a struggle ensuring that. We have actually got a claim for additional fees as a result of that scenario.

BLD05-ORG04-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD05-ORG04-REP01: My role was that of project engineer, whereby it was a very typical role that I did. Whereby, I am the main point-of-contact, as far as the company was concerned, for a day-to-day based thing. And as it happened, I tended to be the point-of-contact for financial . . . basically, if the client [BLD05-ORG01] was going to make any contact with the company, then generally the client [BLD05-ORG01] would contact me. If BLD05-ORG02 wanted to contact the company, generally, they would contact me in the first instance – unless they had some specific complaint about me, then they would go to the director. Above, my role was really to co-ordinate the design; co-ordinate construction from our point-of-view; ensure the information is done, checked, issued; and issued to programs as set and agreed by all parties.

BLD05-ORG04-INT01: Were there any unusual or unforeseen site difficulties?

BLD05-ORG04-REP01: I don't think so. I think the problem we got into about a year ago was the fact that suddenly, having done some initial investigation, the client [BLD05-ORG01] turned around and said: "By the way, I will be wanting £5 million liability insurance on this contamination." And we realized at that stage that we had to go back in and do trial pits at twenty-five-metre centres to ensure that we could give them that . . . we could guarantee it for that. Hence, this was during the negotiation stage, so we had to go to a DD175 investigation, which is a level of investigation whereby it's a sort of a yardstick.

BLD05-ORG04-INT01: Do you think that the commercial property developer's [BLD05-ORG01] failure to clearly define their overall requirements resulted in unnecessary work on your behalf?

BLD05-ORG04-REP01: Definitely! Definitely! And our directors would maintain that . . . basically . . . we can't, really, be too critical of the client [BLD05-ORG01], because the client [BLD05-ORG01] probably didn't know. This whole scheme was financed by a trust, and the client [BLD05-ORG01] probably didn't know what they would be asking for. Therefore, he [BLD05-ORG01-REP01] didn't know what to ask us for. Thereby, you know, it just fed right down the line. And once it was absolutely clear, once . . . the

trust funding wasn't applied for until this time, sort of, last year, he [BLD05-ORG01-REP01] wouldn't have been clear until that stage what the actual insurance was to be. To be fair, we've sorted it out quite amicably for the client [BLD05-ORG01], we've said: "Look, remember the background? You didn't know. We didn't know." We had to go in and do this level of investigation and then we had to do a risk analysis – what was the risk of somebody working on the business park becoming contaminated? I mean, don't get me wrong, it is not a high level of contamination, but it is enough to worry about. You wouldn't want to be eating the soil.

BLD05-ORG04-INT01: To what extent do you think the relationship between the parent company [BLD05-PAR01] and the primary construction contractor [BLD05-ORG05] created any problems during the building project?

BLD05-ORG04-REP01: I would say that caused confusion at times, because although, strictly speaking, we knew we were working for a client [BLD05-ORG01], it was a sort of quasi-type of contract; whereby, you know, the job was on a knife-edge whether it would go or not. The contractor [BLD05-ORG05] was actually dealing directly with us, to say: "By the way, don't . . . I would recommend doing this", in terms of cost savings, to make sure that he could come up . . . or the project would be as economical as possible. But you know, it didn't work too badly. I think BLD05-ORG01-REP01 realizes that there were problems for both ourselves and the architect [BLD05-ORG02] in that respect. But it didn't work too badly. I think we tended to bend a lot more than we would have in relation to the contractor [BLD05-ORG05] to try and give him economy. Because, effectively, the contractor [BLD05-ORG05] and the client [BLD05-ORG01] were merely the same group – the same party. Any money that you could save, effectively, saves their group. We certainly looked at things several times to try and provide as much cost saving as possible, really.

BLD05-ORG04-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD05-ORG04-REP01: There were no nominated subcontractors [secondary construction contractors] at all.

BLD05-ORG04-INT01: To what extent did the structural steelwork secondary construction contractor [BLD05-ORG06], appointed by

the primary construction contractor [BLD05-ORG05], create any problems during the building project?

BLD05-ORG04-REP01: Yes, the main contractor [BLD05-ORG05] did appoint a structural steelwork fabricator [BLD05-ORG06] and that, obviously, affected us. What we found was the calc's were . . . certain calculations were inaccurate; they [BLD05-ORG06] hadn't checked out every element that we would do. They [BLD05-ORG06] were really trying to pull-the-wool in terms of deflection, and they were trying to utilize the cladding to reduce the deflection on the frame. Which, as far as we were concerned, wasn't normal practice. Basically, I think they [BLD05-ORG06] got caught out by us. They [BLD05-ORG06] thought we wouldn't be looking at the design. We, at the end of the day, carried a liability for the frame design, even though it was designed by a fabricator [secondary construction contractor]. BLD05-ORG01-REP01 was eager to ensure that we were satisfied with the frames. And we got caught between the stool of, really: "We're not designing it, but . . . ." You know? We couldn't not look at it. If I had my time over again with that project, I would have made it absolutely clear that, basically, we would not carry the liability. We weren't going to get caught in that scenario.

BLD05-ORG04-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD05-ORG06] did your organization possess?

BLD05-ORG04-REP01: Yes, we have actually have worked with that fabricator [secondary construction contractor] before.

BLD05-ORG04-INT01: How many times had your organization worked with the structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG04-REP01: Just on one occasion before. I think there was no major complaint.

BLD05-ORG04-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD05-ORG06] did you possess?

BLD05-ORG04-REP01: None. We obviously checked them out when BLD05-ORG05 proposed them, and they seemed OK!

BLD05-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD05-ORG02] did your organization possess?



BLD05-ORG04-REP01: I think we have done a few projects with BLD05-ORG02, whereby . . . we've probably done two where they have been lead, I think. But we have certainly been lead on other occasions. But we have done a few office blocks and the like in town where BLD05-ORG02 have been. But they haven't been of this magnitude.

BLD05-ORG04-INT01: Your organization has had previous experience of working with the architectural design consultant [BLD05-ORG02], both as the lead design consultant and not as the lead design consultant?

BLD05-ORG04-REP01: Yes, that is correct.

BLD05-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD05-ORG02] did you possess?

BLD05-ORG04-REP01: No, I don't think I have. But, I mean, we have worked together on this project for five years now, whereby we've been, you know, picking it up and putting it down again. So I have been doing something every year on this project for the last five or six years now. But, you know, I am aware that we did work . . . I was certainly involved in the ORGANIZATION 5B project, but, you know, basically on that job, I was looking after all of the marine works and BLD05-ORG02 weren't really responsible for the external works.

BLD05-ORG04-INT01: To what extent does the reversal of lead consultant role create any problems during your relationship with the architectural design consultant [BLD05-ORG02]?

BLD05-ORG04-REP01: None. I think we are both fairly professional about it. So, to me, it doesn't really matter who is the lead consultant. Because sometimes you are going to be the lead consultant and sometimes you are not. After all, it is all work, and I think we all speak the same language. I don't think it matters if we work for architects [architectural design consultants] or if architects [architectural design consultants] work for us.

BLD05-ORG04-INT01: How would you describe the relationship that exists between your organization and the architectural design consultant [BLD05-ORG02]?

BLD05-ORG04-REP01: I think you could say we have a long-term relationship. Apparently, when we did the local rail network project, we employed BLD05-ORG02 then. So, you know, beyond my time, we did work with BLD05-ORG02.

BLD05-ORG04-INT01: How much previous experience of working with the construction cost consultant [BLD05-ORG03] did your organization possess?

BLD05-ORG04-REP01: None. I don't think we have worked with them before.

BLD05-ORG04-INT01: How much previous experience of working with the primary construction contractor [BLD05-ORG05] did your organization possess?

BLD05-ORG04-REP01: We had previously worked with BLD05-ORG05 before, with what used to be ORGANIZATION 5C – in several of our other offices around the country.

BLD05-ORG04-INT01: How much previous experience of working with BLD05-ORG05 did this particular office of BLD05-ORG04 possess?

BLD05-ORG04-REP01: None, other than BLD05. However, we have tried to involve BLD05-ORG05 on several of our projects, by giving them the opportunity to bid for work. But they've been unsuccessful. Having said that, they do tend to do general building work, as opposed to more engineering-based projects.

BLD05-ORG04-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG04-REP01: Probably a 4.

BLD05-ORG04-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG04-REP01: A 4.

BLD05-ORG04-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG04-REP01: A 4.

BLD05-ORG04-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG04-REP01: A 4.

BLD05-ORG04-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG04-REP01: As a consequence of the experience on this project?

BLD05-ORG04-INT01: That is correct.

BLD05-ORG04-REP01: A 2.

BLD05-ORG04-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG04-REP01: Probably *several times weekly* – 5.

BLD05-ORG04-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG04-REP01: Likewise, *several times weekly* – 5.

BLD05-ORG04-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG04-REP01: Again, I would probably say a 5.

BLD05-ORG04-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG04-REP01: A 6. There were a lot of queries from the main contractor [BLD05-ORG05]. When a job is on a fast-track basis, like this was, there is a lot of unanswered questions.

BLD05-ORG04-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG04-REP01: Well, during the peak of contact it was 7.

BLD05-ORG04-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG04-REP01: *Rarely*. A 2.

BLD05-ORG04-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG04-REP01: Probably a 2, again, I would think.

BLD05-ORG04-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG04-REP01: Again, probably a 2.

BLD05-ORG04-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG04-REP01: A 4.

BLD05-ORG04-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG04-REP01: A 5.

BLD05-ORG04-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the commercial property developer [BLD05-ORG01]?

BLD05-ORG04-REP01: A 2.

BLD05-ORG04-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG04-REP01: A 3.

BLD05-ORG04-INT01: The construction cost consultant [BLD05-ORG03]?

BLD05-ORG04-REP01: A 2.

BLD05-ORG04-INT01: The primary construction contractor [BLD05-ORG05]?

BLD05-ORG04-REP01: A 2, actually.

BLD05-ORG04-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG04-REP01: A 5.

BLD05-ORG04-INT01: What professional services did your organization provide to the client during the building project?

BLD05-ORG04-REP01: We were classed, essentially, as an engineering consultant. We were responsible for all site investigation work, foundation design. We were also responsible for structural [structural engineering design] design, the infrastructure co-ordination, and the infrastructure design [infrastructure engineering design and management].

BLD05-ORG04-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD05-ORG04-REP01: Well, we could actually be the architectural consultant [architectural design consultant], the quantity surveying consultant [construction cost consultant] and all other major professional disciplines needed during the procurement of a project. In this office we do not have an architect [architectural design consultant], but we could utilise an architect [architectural design consultant] from

our nearest office. But, in theory, we could provide every service that a client would need in-house and provide a one-stop-shop. And it can work quite well.

BLD05-ORG04-INT01: What is the full range of industrial sectors to which your organization can provide a professional service to a potential client?

BLD05-ORG04-REP01: All sectors. You can see that in the literature that I have given you.

BLD05-ORG04-INT01: How many years has your organization been established?

BLD05-ORG04-REP01: BLD05-ORG04 was established in 19## from the merger of ORGANIZATION 5D and ORGANIZATION 5E. ORGANIZATION 5F can trace its start back to 19## and ORGANIZATION 5G to 19##.

## 24.4 INTERVIEW TRANSCRIPT BLD05-TRAN04

Organization Role: Primary Construction Contractor

Organization Code BLD05-ORG05

Respondent Role: Boundary Representative for BLD05-ORG05

Respondent Code: BLD05-ORG05-REP01

Interviewer Code: BLD05-ORG05-INT01

BLD05-ORG05-INT01: Who was the client organization?

BLD05-ORG05-REP01: It was BLD05-ORG01.

BLD05-ORG05-INT01: What type of organization was the client [BLD05-ORG01]?

BLD05-ORG05-REP01: It's a developer company [commercial property developer].

BLD05-ORG05-INT01: Why did the commercial property developer [BLD05-ORG01] decide to commission the building project?

BLD05-ORG05-REP01: The client [BLD05-ORG01] had on their books a plot of land – a twenty-nine-acre plot of land – which was a by-product of a company takeover. They bought BLD05-PAR01 because it was a plc company and it was the cheapest way of going for a stock exchange listing. As a by-product of purchasing the company name they also got the plot of land on the \*\*\*\*\* of the \*\*\*\*\* \*\*\*\*\*.

BLD05-ORG05-INT01: How much previous experience of the building process did the commercial property developer [BLD05-ORG01] possess?

BLD05-ORG05-REP01: They have had a fair amount of experience of development in other areas of the country, although this is the first venture into the North-East.

BLD05-ORG05-INT01: How much previous experience of working with the commercial property developer [BLD05-ORG01] did your organization possess?

BLD05-ORG05-REP01: None, never.

BLD05-ORG05-INT01: It was a new relationship?

BLD05-ORG05-REP01: Sure. Can I just mention that sometimes the most difficult relationships to have are inter-company [intra-organizational] relationships as well. You know, you really don't know where you stand with some of them, and it is down to personalities quite often, yeah?

BLD05-ORG05-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD05-ORG05-REP01: There are basically two elements to that. There's the formal contractual relationship, which we participate in: which is where the contract is carried on a JCT 80 form of contract – traditional approach where there's a client, his consultants [design and construction cost consultants] and ourselves as main contractor [primary construction contractor]. Because of the in-house relationship of the client [BLD05-ORG01] and ourselves, and the timescales involved, we were tied in the early stages having to give a guaranteed maximum price, which really doesn't exist in the contract. That meant that we had to participate in the detailed design of the project, which is generally the way it would work if it was a design and build contract. But the actual contract was actually tied into a form of contract which we entered into in 19## to maintain the Enterprise Zone status of the site. So a slightly informal approach was had to be had by all parties.

BLD05-ORG05-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD05-ORG05-REP01: We participated as main contractor [primary construction contractor], but also in the design, in terms of ensuring inherent buildability into the design.

BLD05-ORG05-INT01: How would you describe your own personal roles and responsibilities during the building project?

BLD05-ORG05-REP01: My role? When we initially bid for the project in 19##, I was the chief estimator of the company. The company had only started up the year previous to that. Since that time, and at the time where the contract was entered into in a practical sense – in terms of doing the details to, sort of, justify the original contract – I had moved my position in the company to regional director. But because of the detail, the tremendous amount of detail, and the slightly unique golden contract, which it was called, of maintaining the Enterprise Zone status for the funding purposes and all of the detail in terms of the design which went on over a three year period, between 19## and 19##,

and we started to get into actual detail design – I ended up maintaining my position in the detailed design and throughout the currency of the contract as well.

BLD05-ORG05-INT01: Were there any unusual or unforeseen site difficulties?

BLD05-ORG05-REP01: Yes. As I said, the requirement of BLD05-ORG01 in terms of him putting together – I will call him: ‘Him’ – the developer [BLD05-ORG01] putting together their developer’s budget, if you like – financial feasibility – was to ascertain what one of the main variables, I suppose as far as they are concerned, which was the build cost. They knew the land. They knew the letting value of the end units. So they could work out their development appraisal, with the exception of the build cost. So that was a fairly major requirement for them, because there were potential, quite significant, problems – financially – if it didn’t work. In terms of this particular project, the developer [BLD05-ORG01] decided, or the board of the parent company – BLD05-PAR01 – decided, that they wanted a guaranteed maximum price. Now that really doesn’t exist within a JCT 80 private with approximate quantities contract. So there was an informal agreement, with all parties being present, to a commitment to a figure, which was just over £6 million. Now that meant that we had to have an element of input into the design, or detail of the design, because that figure had to be established before the completion of the detail design. Which meant that in normal circumstances, I suppose, you would have a quantity surveyor [construction cost consultant] – in this case, BLD05-ORG03 – who would identify the overall budget figure, would work within that figure, and advise the architect [architectural design consultant] of any adjustments that might need to take place in the detail of the design to achieve that figure. Now, effectively, because we were committed to that figure, if they [BLD05-ORG02 and BLD05-ORG03] hadn’t got that right and the project over-ran, we would have to pick up the bill. So, in part, we undertook part of that role, or acted closely with BLD05-ORG03 to ensure that the advice they were giving was corroborated by the detail that we actually generated. So a slightly unusual relationship there as well. However, the way it could have gone, I suppose, was to use a BLD05-ORG03’s cost plan and design an element to see if it is within the cost plan. If it is, OK. If it’s not, then you have to diminish the available amount of money for another element within the cost plan – a subsequent one. But because we didn’t get the go-ahead for detail design until, really, a week before the site commencement date, the time really wouldn’t



allow the toing and froing, because you were almost in parallel – designing the key components of the building – and wouldn't have time to start moving around, because we need detail so we could get the steelwork up; get the piles on site; and get the foundations in. Fairly quick contract period for this project. So, yeah, a slightly strange situation for everybody to be in. And the informality, on the one hand, was fine and meant that we had very close communications with each other. But, on the other side, we still had the formal contractual relationship and this guaranteed maximum figure, which was, from time to time, just introduced again just to remind everybody. Very interesting, that.

BLD05-ORG05-INT01: How much previous experience of working with the construction cost consultant [BLD05-ORG03] did your organization possess?

BLD05-ORG05-REP01: I mentioned, really, that BLD05-ORG05 had been in existence in the North-East now for five-and-a-half years. We hadn't previously worked with BLD05-ORG03. Although, bearing in mind the contract commencement date, which was April 19##, and that we had been involved with BLD05-ORG03 in the preparation of the original contract documentation in 19##, and in the meantime went through endless option, I suppose we built up a certain rapport with them – without having actually carried out a contract on site.

BLD05-ORG05-INT01: Would you therefore agree that this was the first time that BLD05-ORG05 had worked with BLD05-ORG03?

BLD05-ORG05-REP01: Yes, in BLD05-ORG05, but obviously we've all had past lives.

BLD05-ORG05-INT01: How much previous experience of working with the structural steelwork secondary construction contractor [BLD05-ORG06] did your organization possess?

BLD05-ORG05-REP01: Well, not an awful lot, because they'd actually set up the company after having gone into voluntary receivership the previous year. So BLD05-ORG06 had only, effectively, been in existence . . . but with bank guarantees to ensure that they would be OK. As far as we were concerned, all we needed was guarantees that they would be OK for the currency of the contract and beyond. And that was tied up. It was separating a few different elements of a previous company, really, and focusing that part of the company, particularly on design and build and out-and-out traditional structural steelwork.

BLD05-ORG05-INT01: How much previous experience of working with the structural steelwork secondary construction contractor did you possess?

BLD05-ORG05-REP01: None.

BLD05-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD05-ORG02] did your organization possess?

BLD05-ORG05-REP01: Again, a similar comment applies in that we were introduced to them to develop the design in 19##, which was only a year after the company was set up in this area. It didn't go at that particular time because the property market crashed and, really, it was a case of just shelving the project, although participating for the next three years in options for developing the details of the design concept. And I suppose the same with BLD05-ORG04. Although individuals and personal reputations obviously come out at times like that, when you may have worked in a previous company. I suppose with both, from an organization, it was a fresh relationship in both instances.

BLD05-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD05-ORG02] did you possess?

BLD05-ORG05-REP01: None.

BLD05-ORG05-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the construction cost consultant [BLD05-ORG03]?

BLD05-ORG05-REP01: *Not very reputable*. I have thought about this. I mean, not assuming that we were going to have a meeting here, and taking all of these comments in confidence. Prior, I had a view of what I expected from BLD05-ORG03 – prior to this contract – because of what I had seen previously maybe, or what I assumed to be their reputation: one of the largest Qs [construction cost consultants] in the area. A reputable company, you would have thought? They missed out £600,000 of work from the take-off, which in a quality check we did, we picked up. It would have put us in significant difficulty with our client [BLD05-ORG01], even though it was in-company, if we hadn't picked that up. And there wasn't just one item. There was a number of elements where they introduced a set of quantity surveyors [construction cost consultants] to do a final take-off, which was the cost control document – the bill of quant's, if you like – who hadn't been involved over the

previous three years and didn't know the detail. Therefore, they missed an awful lot out that everybody, and you thought everybody around the table – BLD05-ORG02, BLD05-ORG03, BLD05-ORG04 – all knew the detail of it. But they introduced a new team leader, effectively, to carry out the detail of the take-off. And there were major errors in there, which we had to pick up.

BLD05-ORG05-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG05-REP01: *Very reputable.*

BLD05-ORG05-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG05-REP01: *Not very reputable.*

BLD05-ORG05-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG05-REP01: *Not very reputable.*

BLD05-ORG05-INT01: The commercial property developer [BLD05-ORG01]?

BLD05-ORG05-REP01: *Very reputable.*

BLD05-ORG05-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings etc., to each of the following organizations? First of all, the construction cost consultant [BLD05-ORG03]?

BLD05-ORG05-REP01: It varies significantly, because, obviously, at the early part of the contract, where the detail design had not been completed, we were still toing and froing about the lumps of money available for certain elements, and participating in detail, and resolving the problems which had taken place because of the pricing document not being at the appropriate standard, if you like, and having to be fulfilled by us with lump sums at the end of the day in a very tight time period. Overall, there was a significant amount of . . . I would suggest, almost in the first three months, there was a significant amount of toing and froing in all respects. That was: letter, telephone, direct meeting, reports – which were on a *once monthly* basis – which from that time, where, really, we had most of the problems on the project resolved, reduced to probably a *once weekly* informal telephone discussion and a *once monthly* formal

meeting – that was for BLD05-ORG03. I don't know if that answered your question or not?

BLD05-ORG05-INT01: It is a difficult question to answer and can be subjective. However, if you could look at *Scale B* once more, but this time try to provide as accurate a response as possible to the level of communication between your organization and the construction cost consultant [BLD05-ORG03]?

BLD05-ORG05-REP01: It probably averaged out at *several times weekly*, I would suggest. Fairly concentrated at the early part, and trying to spread my memory of that, I suppose, over the later parts, where really we were just down to, sort of, monthly valuations, because everything was resolved and it was just a case of that monthly meeting, almost.

BLD05-ORG05-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG05-REP01: As an organization, at times, I suppose, it's been quite significant. The close relationship and type of communication that we had with BLD05-ORG02 . . . it was probably between *once daily* and *several times daily*. Fluctuating between that from time to time.

BLD05-ORG05-INT01: Which of the two responses do you think is most appropriate?

BLD05-ORG05-REP01: As an organization, probably *several times daily*, because our project manager, BLD05-ORG05-REP02, ended up having a fairly close working relationship with BLD05-ORG02-REP01. Bearing in mind that the detail design, although, structurally was complete fairly early on in the contract, finishes were a constant toing and froing. And it was partly because of our problems with exceeding the maximum budget, the maximum price, if you like, and BLD05-ORG02's emphasis on obtaining maximum value for money and quality, I suppose, on behalf of the client [BLD05-ORG01]. Sometimes it wasn't hand-in-hand, and there were discussions on that.

BLD05-ORG05-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG05-REP01: Again, early parts it was probably *several times daily*, because for the first twelve weeks or so, structural steel design was a significant problem. Drainage was a significant problem, and that was, again, because of the lack of lead-time, I think, to resolve the detail early on. Towards the latter part of the contract it's been less

significant. Probably down to *once weekly*, rather than less than once weekly.

BLD05-ORG05-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG05-REP01: We ended up being the post box between BLD05-ORG04 and the structural steelwork [BLD05-ORG06]. So early in the . . . because of the contractual link, if you like, privity of contract is between ourselves and the subcontractor [secondary construction contractor]. So we insisted that we were copied in on everything and were the post box between the two. So again, during the whole of their contract period, which was between, maybe, eighteen or twenty weeks, it was probably *several times daily*. And quite extensive and detailed information passing to and fro.

BLD05-ORG05-INT01: The commercial property developer [BLD05-ORG01]?

BLD05-ORG05-REP01: Probably, *several times weekly*.

BLD05-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the construction cost consultant [BLD05-ORG03]?

BLD05-ORG05-REP01: *Quite often*, I would say.

BLD05-ORG05-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG05-REP01: I would, probably, say that the same response would be there, *quite often*. But it was never insurmountable. We always . . . we always and quite easily found our way . . . a route around that with BLD05-ORG02, which I think was the quality of the relationship that was built up. So their priority, I suppose, was the . . . almost the aesthetics of the architectural outcome of the buildings. We . . . although we wanted a building that would look nice at the end of the day, we had this guaranteed maximum price. The cost pressures were significant on us, and you were talking about large lumps of money. And, always, we identified the dispute and it was resolved fairly amicably, I think, or disagreements or whatever.

BLD05-ORG05-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG05-REP01: *Often or very often*, I would say.

BLD05-ORG05-INT01: Which of these two responses would be most appropriate?

BLD05-ORG05-REP01: *Often*, I'll be kind.

BLD05-ORG05-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG05-REP01: No. We rarely had a problem with responsibilities. It was technical detail and codes of practice which was . . . which was the problem between both [BLD05-ORG04] and the subcontractor [BLD05-ORG06]. But, obviously, we were in the middle of that and getting involved. There's a phenomenal of detail in there, but maybe if I can just advise of the problem. To start with, BLD05-ORG04 designed the structural steel. We were over budget, over the guaranteed maximum price, which the client [BLD05-ORG01] had entered into his contract. So he'd [BLD05-ORG04] used that information. When he came to the detail design, BLD05-ORG04 carried out the design. We had it costed and it was way over the top – a quarter of a million pounds, maybe? Bearing in mind that we have often worked in these circumstances, where structural engineers design steelwork on a belt and braces basis, we simultaneously went out to various subcontractors [secondary construction contractors] for design and build options – giving them the design parameters which they had to work to. The difference in the figure between the outcome proposed by the structural steel guy [BLD05-ORG06] and the same performance requirements as had been designed by BLD05-ORG04 was in the order of about £200,000 to £250,000. Massive really! One fitted the budget the other one was nowhere near. Unlikely as it may seem, there is an awful lot of subjectivity in the steelwork design. I would have thought it was straight down the line. But, obviously, sort of . . . various loads have wind loads and at what level on the building they actually hit the building are open to, really, interpretation and subjectivity. And BLD05-ORG04 had taken the very worst case in every case – so it was a belt and braces design. And the steelwork subcontractor [BLD05-ORG06] had taken, I suppose, an optimistic view. And that was the source of the problem, I think, between BLD05-ORG04, who from the start wanted to justify that their design had been correct, and the steelwork subcontractor [BLD05-ORG06], who was justifying that his steel design was correct. We were almost, at times, asked to be the arbitrator in that discussion or argument, with a limited amount of knowledge about the structural design.

BLD05-ORG05-INT01: So how would you rate the extent to which conflicting responsibilities or priorities characterized your relationship with the structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG05-REP01: No, they were aware of their requirement to design and build the structural steelwork on this project. Again, there wasn't any conflict about roles and responsibilities; it was purely detailed technical details where there were problems. So, on that basis, I would say *never*.

BLD05-ORG05-INT01: The commercial property developer [BLD05-ORG01]?

BLD05-ORG05-REP01: I would say *rarely*.

BLD05-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the construction cost consultant [BLD05-ORG03]?

BLD05-ORG05-REP01: Almost every time. *Often*, I would say. And that's almost, I think, because traditional roles of PQS and contractors' QS, or whatever – and that's the general point of contact – has throughout history been adversarial, I suppose. Every one of the disputes has been resolved amicably, and I think that really is the strength of the relationship that's built up. You have a dispute, you get together, you resolve it, and it doesn't drag on and destroy the contract, the project, or whatever, or relationships within that. So we quite easily isolated the problems and it maybe meant a couple of more senior guys in the organization were drawn into it, myself, I suppose, rather than our project QS, and the lead surveyor, maybe, at BLD05-ORG03. It didn't happen significantly. But because, again, the lead surveyor at BLD05-ORG03 was the guy who'd had the history with the job, so it was often down to discussions, topics, arrangements, agreements that had been made in 19## and subsequent – prior to our project QS being involved and BLD05-ORG03's project QS being involved – that had an effect on the current contract or the positioning of various parties on the current contract.

BLD05-ORG05-INT01: The architectural design consultant [BLD05-ORG02]?

BLD05-ORG05-REP01: *Quite often*. But again, you know, even if we said *very often* there, it wouldn't matter, as long as they were resolved and it wasn't to the detriment of the . . . either the relationship, the contract, or the progress of the works.

So, I think, that maybe is the other side of the question, you know? Although you might have *very often*, say, had a disagreement or a dispute, was it resolved quickly and did it have a significant impact upon progress on site, the end result or not? So you know, I think that just needs to be born in mind.

BLD05-ORG05-INT01: The structural engineering design consultant [BLD05-ORG04]?

BLD05-ORG05-REP01: In putting ourselves between the structural steelwork subcontractor [BLD05-ORG06] and the structural engineer [BLD05-ORG04], we quite often had to play the part of putting forward the argument of the structural steelwork subcontractor [BLD05-ORG06] to the structural engineer [BLD05-ORG04], and vice versa: putting the argument of the structural engineer [BLD05-ORG04] to the structural steelwork subcontractor [BLD05-ORG06]. It ended up there were a significant number of meetings around this, where again, we, sort of, sat there almost as the arbitrator in the disagreements that occurred, and trying to get resolutions which would enable the contract actually to proceed and maintain program. So on that basis, I suppose, there were *often* disagreements and disputes.

BLD05-ORG05-INT01: The structural steelwork secondary construction contractor [BLD05-ORG06]?

BLD05-ORG05-REP01: The same applies, really, because being in the middle it was both ways.

BLD05-ORG05-INT01: The commercial property developer [BLD05-ORG01]?

BLD05-ORG05-REP01: *Never*, I would say.

BLD05-ORG05-INT01: What professional services did your organization provide during the building project?

BLD05-ORG05-REP01: Bearing in mind, really, that we had to underwrite that guaranteed maximum price, although there were other people we didn't have a direct contractual link with, we had to form a relationship with the various parties that lead to the ultimate conclusion: which was the job finishing on time, within that budget. If it didn't, and there were times where the previously undefined design of the latter part of the contract was subject to client's [BLD05-ORG01] preference and things, we had to take a fairly strong lead in determining the available funds to design that element of work, finishes, or whatever it might be. So in that



respect we were acting, almost, as a design and build contractor, although it's a traditional contract. Sometimes taking the lead with the architect [BLD05-ORG02] – against the run of what would be a formal arrangement on a JCT 80 – but also, sort of, having to back down and carry out their instructions, which was a contractual requirement of what we had entered into. So there were within that, again, because obviously, we were to a certain extent going to be hit with the problems of someone not controlling the purse strings, we acted as a cost advisor [construction cost consultant] to the client [BLD05-ORG01] – a secondary cost advisor [construction cost consultant] – the primary one really being BLD05-ORG03, as far as he [BLD05-ORG01-REP01] was concerned. But he [BLD05-ORG01-REP01] took more and more note of comments that were made on actual costs from us, and often played one off against the other, I suppose, as clients would. Also, as just a main contractor [primary construction contractor], really, but as a contracting organization operating on a site and building a building to the quality and specification required, and hitting or bettering the timescales which were required.

BLD05-ORG05-INT01: What is the full range of professional service that your organization could provide to a potential client?

BLD05-ORG05-REP01: I think one of the main things that we have is organizational ability, which, I think, some of the, maybe, older professional companies, I suppose whether they be QS's [construction cost consultants], architects [architectural design consultants], or engineers [structural engineering design consultants], haven't been able to manage the change in the industry, which forces change on their organizations. Commercial organizations, contractors [primary construction contractors], not just ourselves, have had to change very quickly to accommodate the requirements of clients. One of them is to, sort of, enter into the design and build: guaranteed maximum price projects, whatever. And that's the ability to, sort of, manage, I think, to timescales. A lot of the time we spend having to pressure these guys, who, maybe, just weren't used to, sort of, making decisions under pressure, because the steel is there; a sixty tonne crane is standing there; and we actually haven't got the foundation design yet; and we don't know if the reactions are correct. And they would just say: "We will get back to you in a week's time." Well, we drove that and said: "It's not acceptable." And we'd get the guy [structural engineering design consultant] staying behind until, sort of, whatever time it took that night – eight to nine O'clock at night, or

whatever – to actually ensure that the progress of the job was maintained. So there was a definite project management role that we can offer on this basis, which is different to a PQS's idea of project management, which is really just passing letters around. It is a generating, dynamic role, I think, that contractors [primary construction contractors] can input into this sort of relationship.

BLD05-ORG05-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD05-ORG05-REP01: In terms of categories of buildings?

BLD05-ORG05-INT01: Yes, that is correct.

BLD05-ORG05-REP01: OK! Well, just running through the type of contracts that we have on currently, and are pushing forward. Definitely housing – which tends to be either local authority or housing association – where we've currently got, maybe, about £5 or £6 million worth of work – built-up from nothing over five years, built on quality of performance and service and nothing else, really. We have to hit the market level if we bid in any competitions, so that that's almost a given, if you like. And what we had to do to establish our name is develop a reputation which is better than our competitors, so we are chosen for the next tender list, and we actually, sort of, get in there. So, certainly housing. Education is another. We have probably built about three or four schools now, again, in a fairly short life span. We are up to our seventy-second contract, so that is the sort of numbers that we are dealing with here. Fit-out contracts: where we carried out fit-out contracts for say, ORGANIZATION 5H – half a million pounds worth of work in four weeks – a massive, sort of, pull of your resources. And I think if you can manage that sort of thing, then, you know – something where you've fifty-two weeks – it's not easy going but it's more evenly spread throughout a longer period. Commercial [pointing to an artist's illustration of the building project up on the interview room partition wall], well, this is what we would determine as industrial, i.e., the first industrial units along there – 85,000 square feet – and commercial, which is, maybe, office buildings like this. But I think as most companies are at the moment, with the market the way it is, we are fairly opportunistic and feel that we can apply the attitude to what we do to almost any sector. The only thing that we don't participate in is civil engineering work, which usually requires a company to hold a certain

amount of plant, so you are fairly heavily capitalized – which we don't choose to do. So I think generally it's the . . . not the type of building that you become expert at, it's the controls that you input that you become expert at: how to control thirty subcontractors [secondary construction contractors]; your direct labour; and within timescales. And I think that is what we have generated expertise at.

## 25 APPENDIX P: BUILDING PROJECT 6 (BLD06) INTERVIEW TRANSCRIPTS

### 25.1 INTERVIEW TRANSCRIPT BLD06-TRAN01

Organization Role: Architectural Design Consultant

Organization Code: BLD06-ORG02

Respondent Role: Boundary Representative for BLD06-ORG02

Respondent Code: BLD06-ORG02-REP01

Interviewer Code: BLD06-ORG02-INT01

BLD06-ORG02-INT01: Who was the client organization?

BLD06-ORG02-REP01: Our client was BLD06-ORG01.

BLD06-ORG02-INT01: What type of organization was the client [BLD06-ORG01]?

BLD06-ORG02-REP01: They are a very large international organization that happens to have a regional headquarters in the north-east of England. They wanted a new building at their regional headquarters.

BLD06-ORG02-INT01: Why did the client/end-user [BLD06-ORG01] decide to commission the building project?

BLD06-ORG02-REP01: Well, yes, I mean the philosophy or reasoning is perhaps a better word. I don't think it's as deep as a philosophy. The reasoning is a practical and physical need, inasmuch as they had properties on the quayside, which were, I assume, compulsory purchased. Certainly, they were acquired by, through, or for the \*\*\*\* \* \* \* \*  
\*\*\*\*\* as part of their grand plan for the development of the \*\*\*\*\*, in effect. So, in other words, their building stock was, in effect, being reduced, and it was a case of people who were presently housed at the quayside had to be housed somewhere else. And to cut a long story short, the decision was that they would extend the property in the city. I mean, there was a rationalization exercise that went on as well, I think. But in essence, you know, that was the reasoning behind the need for that particular building.

BLD06-ORG02-INT01: How much previous experience of the building process did the client/end-user [BLD06-ORG01] possess?

BLD06-ORG02-REP01: Well, quite a . . . yes, the client contacts . . . well, a number of client contacts. I suppose I ought to explain. The one that we dealt with on, almost, a day-by-day basis – a chap called BLD06-ORG01-REP01 – was of building stock, if I can put in those terms. In other words, he [BLD06-ORG01-REP01] understood building procurement and building contract and all the vagaries and quirks that go along with it. So, in a way, his [BLD06-ORG01-REP01] being there made life a lot easier. I mean, people who are not familiar with how contracts work, and the rest of it, sometimes have difficulty in understanding, you know, what you're saying, almost. "Well why, exactly, is buying a building not like going to buy a tin of baked beans, for example?" Or in their case, hundreds of tonnes of chemicals to turn into, you know, a consumer product or whatever it is that they're making. And . . . actually, thereby lies a little bit of a tale, because when we got to it, the actual form of contract that they were wanting to use – a standard BLD06-ORG01 form of contract – was geared to purchasing. It didn't matter what you were purchasing, you know, they use this contract. And they had to be persuaded that a building was slightly different to mega-tonnes of, you know, chemicals. And in the end, they used the JCT form of contract as I've indicated there [pointing to the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.12 on page 329)]. But that was helped or assisted, I am sure, by the fact that the QS [BLD06-ORG03] – we were introduced to this job by the QS [BLD06-ORG03] – I mean, we didn't work for the QS [BLD06-ORG03], but BLD06-ORG03-REP01, who is a partner at BLD06-ORG03, was the one who introduced us into the team. He [BLD06-ORG03-REP01] led, I have to say, the negotiations or discussions with the contact at BLD06-ORG01. And eventually, having oscillated backwards and forwards between: "Yes, we'll go to JCT 80. No, we've changed our mind; we want our contract. No, we'll go back", we ended up with a JCT, which I think was the right decision. Because, I mean, that is, after all, geared to the procurement of a building with all of the, you know, vagaries and peculiarities that, you know, are related there to . . . rather than something which is geared to . . . well, a relatively simple exercise: "I want three million tonnes of a particular chemical. Can you ship it in for me?" Well, OK, I am not saying there aren't difficulties with that, but I mean it certainly isn't the same as putting a building together.

BLD06-ORG02-INT01: To what extent was this sequence of events the reasoning behind the amendments to the JCT contract?

BLD06-ORG02-REP01: No, I mean, that isn't an amendment in that sort of sense. I don't think there were any amendments specific to the way you're reading that. It's just that the JCT 80 form of contract has been amended over the years in a response to . . . well, I shall call them market forces or happenings or whatever else it might be. In other words, it wasn't something that was parochial, if you like, insomuch as it was a product of what we were doing for BLD06-ORG01 specifically. Those amendments are national, and have come out of, you know, whatever developments, like CDM, have been made. That's what those amendments are, together with a design portion supplement. I mean, again, we do that more and more: recognizing, I guess, more and more that there are elements of the building which I . . . I mean, I consider the architect [architectural design consultant], others maybe won't, but I consider the architect [architectural design consultant] rather like I look at a GP [general practitioner]. In other words, the general practitioner has an idea of what happens in your head, but if he thinks there is something wrong with the grey cells, he will send you to a neurosurgeon or whatever. And in a similar sort of way we deal with things where . . . they're very specialised . . . windows for instance – big pieces of window. Yes, I mean, I know I want to fill an opening of such and such, and I know I've got to ask the question: "You are certain, Mr Specialist, that it will fill an opening of that size?" But I, you know, can't check in the sense that, you know, I don't know the exact piece that he's giving me, necessarily. So, you know, we cover it by introducing the design supplement. So those specialist bits of, you know, subcontracted work are covered by them [secondary construction contractors] also being responsible for the, well, the detail design. The concept design is ours. In other words: "This is what we want it to look like. This is the shape we want. This is the number of mullions and transoms, etc." But you, as the specialist, will make sure that from a structural point-of-view, and from a weather resistive point of view, etc., it's OK. Again, that's a rather long-winded way of explaining why, you know, the design supplement gets into the thing.

BLD06-ORG02-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did your organization possess?

BLD06-ORG02-REP01: No. This was our first encounter with BLD06-ORG01.

BLD06-ORG02-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD06-ORG02-REP01: Well, it was to act as the building designer [architectural design consultant]. Although I would say there that the brief, and this may be pre-empting a question that you're going to ask me, is that they [BLD06-ORG01] already had in mind what they wanted. In other words, the brief wasn't just: "We want an extension and we want to house so many people." They [BLD06-ORG01] already knew how many people they wanted to house. They [BLD06-ORG01] already knew whether they would be pairs, singles or whatever, and they therefore produced a plan. I mean, the plan changed in detail, but not in principle, if I can put it in those terms, over the time that we worked on it. So the brief was not only a verbal, you know, sort of thing – a words thing – it was also a pictures thing. In the sense that what we were presented with was two very rudimentary or elementary plans. I mean, there were no structures shown, but, you know, there was a room layout shown in terms of: "This is the size of the room that we want. This room will house one person or two people."

BLD06-ORG02-INT01: Did the client/end-user [BLD06-ORG01] solely enter into negotiations with your organization to undertake the role as architectural design consultant or did they have discussions with other architectural design consultants?

BLD06-ORG02-REP01: Not to the best of my knowledge. I mean, I wasn't aware . . . literally, we were approached through BLD06-ORG03. They phoned us up one day and said: "Can we go across to a briefing meeting." Admittedly, they already had some ideas as to what the fees should be and how much of that was a discussion with BLD06-ORG03 and the client representative [BLD06-ORG01-REP01], I really don't know, and didn't ask. You know, sort of, it wasn't exactly a take it or leave it type of exercise, but when we came back and compared the fee with what we thought we were going to spend, we had no problem with it. I mean, it was in the area where we may have . . . if they'd said: "What fee could you work to?" I mean, it was in the area where we may well have, you know, made an offer, anyway, shall we sort of say. So having been appointed, we took on the lead design responsibility. In other words, the concept design then became ours. We topped and tailed what they already had done. We designed the jacket to go around it, and had an idea as to what the structure might be, and then liaised with the other consultants: BLD06-ORG03, obviously, from a costing [construction

cost] point-of-view; BLD06-ORG04 from a structural design [structural engineering design] point-of-view; and BLD06-ORG05 from a mechanical and electrical [building services engineering design] point-of-view. I mean, they all, obviously, did their own particular thing, but we, sort of, held a series of weekly design team meetings during the design concept. And we talked about, you know, sort of, co-ordination of the respective efforts, so that, you know, everyone got their wishes. And there were no . . . well, no clashes. I can't imagine that we got away with no clashes. But, you know, we avoided problems later on by, as I say, exchange of information, which was the regular exchange of drawings and the regular holding of meetings to discuss, you know, what it was that we were going to do. Those meetings, if you like, became a briefing meeting as well. So, in other words, you use the meeting . . . we took the minutes and chaired the meetings and prepared the agenda. So the minutes were a record of decisions made, and in some respects, and more importantly, a record of decisions to be made for the next meeting and onwards through the design process.

BLD06-ORG02-INT01: Do you know if the client's/end-user's [BLD06-ORG01's] scheme design was produced by an individual with previous building design experience?

BLD06-ORG02-REP01: Well, it was produced by BLD06-ORG01-REP01, or a technician [BLD06-ORG01-REP02] who he was employing – working for BLD06-ORG01-REP01. So, certainly, they had, I suspect, formal building training background, but I don't think they were an architect [architectural design consultant]. I mean, that's not to say that people who are not architects [architectural design consultants] can't design. But I think he [BLD06-ORG01-REP02] was a chap, and, indeed, probably BLD06-ORG01-REP01's background as well – he's [BLD06-ORG01-REP01's] more from the technical side rather than necessarily, you know, from the architectural side. I never did find out whether BLD06-ORG01-REP01 was an architect [architectural design consultant] or not. Certainly, the way he [BLD06-ORG01-REP01] sketched seemed to suggest he possibly might have been. There's a certain, I don't know, commonality, anyway, among architects' [architectural design consultants'] sketches. But without doubt, I mean, certainly [BLD06-ORG01-REP01], who we'll say was the point-of-contact, had a sound working knowledge of building design, procurement and construction.



BLD06-ORG02-INT01: To what extent do you think this previous building-related experience assisted with the development of an effective and efficient building design brief?

BLD06-ORG02-REP01: I think it probably did, yes. I mean, they [BLD06-ORG01] were very positive in what they wanted. And . . . yeah, I am sure the in-house, you know, sort of knowledge of what buildings are and how to get them, you know, probably helped in them [BLD06-ORG01] being able to, you know, fulfil . . . I mean, what you find is that, in fact, the people . . . I mean, this extension wasn't just housing, you know, normal office staff. Again, that's not denigrating them in any sense of the word at all. Primary, the . . . well, it had a threefold function, I guess – the extension. One was to house, we'll call them: 'normal staff.' The other primary function was to provide training facilities, meeting rooms and large training halls for the staff, so that they [BLD06-ORG01] no longer needed to go out and buy, if you like, space in hotels, or wherever it might be, for seminars. And that is now all held on site. And in that, sort of, sense, they [BLD06-ORG01] saved themselves – I mean, OK, it cost them to build the building – but, you know, they're not spending quite, you know, considerable sums of money on hiring space for the organization of training and seminars. So that was the second function. And the third function was the housing of what they call the '\*\*\*s', which are \*\*\*\*\*  
\*\*\*\*\* – directors, by another name. And you know, so, therefore, the third and last function was to house the \*\*\*s who moved and vacated from one of the existing wings in the existing building, which was then – we didn't do it – but it was then subsequently, you know, butchered – gutted, if you like – and turned into office space for other staff. And that was all part and parcel of a preconceived plan – a long-term plan – that they [BLD06-ORG01] had in mind. So yes, I mean, I've waffled on rather, but, you know, it illustrates, or I've tried to illustrate, that in my view, they [BLD06-ORG01] had very much thought about what it was they wanted, you know, to the extent that they were able – through BLD06-ORG01-REP01 – to, you know, produce a sketch, that graphically, if you like, illustrated the, 'that want'.

BLD06-ORG02-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD06-ORG02-REP01: Personally? Well, I would call myself the project leader, if you like. I mean, I, you know, maintained the contract right the way through, you know, through the whole exercise. I did the initial, sort of, sketches and then

handed, you know, sort of, design work on. I mean, I don't think I was ever not there, but one of our architects [architectural design consultants] – BLD06-ORG02-REP02 – was involved in developing the designs that I'd initially done, topping and tailing them. Probably improving them in some areas. And then he [BLD06-ORG02-REP02] got . . . when we got the tender packages together, he got dragged off onto other things, and I just picked the job up at that time and ran with it. Well, he [BLD06-ORG02-REP02] helped now and again, but generally didn't come back. So I had an ongoing involvement right the way through. So not only was I, I suppose, the project leader – the group leader/director-in-charge, if you like – I also did, you know, at certain stages, the job architect's [architectural design consultant's] role as well. So it was a multi-hatted involved, if you like, which I quite enjoy, actually. Because, to be quite frank, just the admin . . . alright up to a point, but the real excitement is the actual bricks and mortar, and walking into this three-dimensional space that is created out of a two-dimensional, you know, sort of, piece of paper. It's almost a drug, you know, but there you go.

BLD06-ORG02-INT01: Were there any unusual or unforeseen site difficulties?

BLD06-ORG02-REP01: No, I don't think so. I mean, unusual . . . well, there is an undercroft in the building, as I call it, but there is in the existing building – which means that there is a void under the ground floor slab. It's generally used for services. I can't quite understand why it was done that way, really, because there is more space there than the services demand. But in order to keep the services running efficiently, a similar form of construction was employed in this particular case. The site wasn't brilliant, so, you know, perhaps there is a lot more structure in the ground than would appear, you know, necessary at first viewing. But I wouldn't say there is anything particularly unusual, shall we sort of say, in that regard. I mean, it was pads – they were large pads, almost to the extent that the pads were touching one another, if you like. So, almost, I suppose, it became a raft in that regard. But, you know, so yes, there was . . . disproportionately a lot of concrete in there, but I mean nothing mega-clever or unusual, shall we say, about the form of the foundations.

BLD06-ORG02-INT01: What was the original budget for the building project at the briefing stage?

BLD06-ORG02-REP01: There's a good question. I guess somebody must have mentioned that. I think, if my memory serves me

correctly, I think they [BLD06-ORG01] were looking at about £3 million for the job.

BLD06-ORG02-INT01: What was the cost estimate of the building project after the scheme design?

BLD06-ORG02-REP01: It had gone up, yes. I mean, it did go up during the course of the scheme design. I mean, not least of all because they [BLD06-ORG01] were wanting changes. I mean, even late on, you know: "We've got to house more people." "Right, we'll change that office from a one person office to a two person office." So there were additional costs as a result of the butchering, if you like, of the things that had already been, you know, been built. And as we developed our relationship with them [BLD06-ORG01] we talked about, you know, how we would deal with the sub-division of training spaces and the rest of it. And we, you know, sort of, showed them a particular, you know, sort of sliding, stacking door system, which to use two negatives was not inexpensive, and I suspect was rather more, perhaps, than had been budget for. And the cost went up accordingly. But it wasn't something which was forced upon them or they [BLD06-ORG01] didn't know was happening. In other words, the costs, by and large, were already . . . were pre-assessed and agreed before it happened. I mean, there were other exceptions; for example, at the entrance to the site. Just after we started, we discovered a gas main that was a lot higher than the Gas Board had . . . well, I don't know, I was going to say led us to believe. They never tell you exactly where it is. All they tell you is that it's there. But then there is a big disclaimer in the corner of the drawing saying that it could be anywhere. I mean, that's a bit gross and a bit bias as well. But, yes, it was much nearer the surface than we'd any right to accept it was, and so, consequently, works had to stop while this was all dropped. Well, it was the cost of the dropping of the service which ran into a number of thousands of pounds, and then, of course, there's the problem of the fact that the contractor [primary construction contractor] can't get in and out of the site. So the contractor [primary construction contractor], you know, gets behind. And, you know, that was a product of an extension of time. So there was those, sort of, you know, sort of unforeseen costs – justifiable but unforeseen costs. But, you know, the majority of the additional costs, and the job went up to pushing on towards, I think, about . . . I think we spent the best part of another three-quarters of a million on the job in total, but it was all to do with, you know, sort of, the quality of finishes that we suggested. And they [BLD06-ORG01] accepted that.

BLD06-ORG02-INT01: To what extent do you think the client/end-user [BLD06-ORG01] acknowledged and respected your advice concerning the achievement of quality?

BLD06-ORG02-REP01: Oh, without a doubt, yes. Well, I mean, yeah. Maybe other architects [architectural design consultants] would have done just the same while we were there. But, I mean, what was clear and what they wanted was an upmarket statement. In other words, I mean, it was the training building. Therefore, it was going to be occupied by visitors and it was occupied by the principal managers of the north-east, you know, branch of the organization. And it therefore had to have the necessary environment to support that, if you will. And if that meant spending a few bob more than you might in a normal, you know, speculatively built office building, well, so be it, was the view they took. I mean, again, I can only cite examples to try and illustrate the point. But, you know, one was the fact that in the \*\*\*s corridor, instead of having a conventionally high door of whatever a conventional high door is – 2040 high – we actually went for . . . I think they were 2060 high. I mean, they are literally from floor to ceiling. I mean, we made it as a suggestion in the belief that perhaps they would say: “Oh no, that’s too expensive.” However, they said: “Oh yeah, that has a certain *je ne sais quoi* about it. Yeah, we’ll have some of that.” And it was, you know, that sort of development. I mean, there were other things, I think, we suggested where: “No, no, that’s probably going a bit too far.” But, I mean, if they felt it would give the ambience, or whatever clever words one wants to use, that they perceived they were looking for – which, I say, is a headquarters/training building and a flagship, if you like, for the organization – then they were prepared to consider that and it was talked through and approval was given to, you know, to proceed as was. I mean, you know, they . . . even to the extent that they chose . . . we selected various veneers for the doors that they may have wanted. And the one that was chosen was called Olive Ash. And BLD06-ORG01-REP01 and I went down, in the end, to a warehouse in London: The Exotic Veneer Company, what a name! Anyway, we actually chose the veneers for the doors and for the boardroom table, which was specially designed by ORGANIZATION 6A in \*\*\*\*\*, I think it is, and various other elements of work that had to be done. And, literally, the veneers were in logs when we first started. I mean, they’d actually been cut, it was veneer, but the veneers were laid down so they looked like the log of a tree, which was quite an interesting exercise to get involved in. Just as an aside, the warehouse was a bit like

going to a bizarre where, you know, they're selling flavourings. I mean, you went in and your nose was absolutely stimulated by all of the various woody smells. It was fabulous! It was a really good trip. I enjoyed that. But, you know, again, that was another example of wanting a particular product and wanting to do the right thing, you know, in getting that product.

BLD06-ORG02-INT01: To what extent did the accepted tender estimate exceed the expected cost estimate?

BLD06-ORG02-REP01: In truth, I can't remember. I think it came in there or thereabouts, if I recall correctly. Yes, I don't remember any particular major or mega problems with that. So I can only assume that it came in round about the figure that had been anticipated. I do remember that we didn't go through a cost pruning or cost cutting exercise. So in that regard I can only assume that the tenders, when they came in, were there or there about what we'd expected them to have been. I think it was there or thereabouts, to be quite honest.

BLD06-ORG02-INT01: What was the amount of the final account?

BLD06-ORG02-REP01: I think it went up to nearly £3.9 million – £3.85 million to £3.9 million. I think it might be £3.9 million, actually. BLD06-ORG03-REP01 will probably be able to remember that. He will have it at his fingertips.

BLD06-ORG02-INT01: What date did construction work started on site?

BLD06-ORG02-REP01: Yes, it was straight after Christmas. It was the early part of January, 4 January, I think it was, 19##.

BLD06-ORG02-INT01: What was the original duration of the building project?

BLD06-ORG02-REP01: It was to be thirty-five weeks.

BLD06-ORG02-INT01: What was the actual duration of the building project?

BLD06-ORG02-REP01: It ran over by about five weeks. I think it went to forty weeks.

BLD06-ORG02-INT01: Were there any liquidated and ascertained damages imposed?

BLD06-ORG02-REP01: There were none. I extended for the full five weeks. There were the problems with the gas main that I've alluded to. I think they might have been some weather in that and there was almost certainly, you know, client

changes-of-mind at a very last minute. And again, BLD06-ORG01-REP01's involvement made that much easier than it often is. And he [BLD06-ORG01-REP01] was able to say: "Yes, what the architect is saying is absolutely right. You can't go in when things aren't finished. They're rushing to try and get on, and you're asking them to either change something or add something. That is grounds for extension of time." So, I mean, it wasn't a mega amount. I think in the five weeks that they overran, I think there was no argument but to extend for that time. That's what I did and certainly there's been no come back from, you know, the client authority [BLD06-ORG01-REP01]. So I can only assume they [BLD06-ORG01] were happy to accept that decision.

BLD06-ORG02-INT01: Who was the contract administrator?

BLD06-ORG02-REP01: We were. I was the contract administrator. Yes, I mean, if you like, we oversaw what the team was doing. I mean, trying to tie everybody's efforts into one and trying to ensure that everybody was singing from the same song-sheet, if you like. But when the job was actually let and on site, we managed that process as well. So, you know, it was a conventionally run job: architect's instructions confirm the issue of information from the other consultants; we took the site meeting minutes and minuted them; and were the point of contact for the contractor [BLD06-ORG06].

BLD06-ORG02-INT01: How was the structural engineering design consultant [BLD06-ORG04] appointed?

BLD06-ORG02-REP01: I don't know, no.

BLD06-ORG02-INT01: How was the building services engineering design consultant [BLD06-ORG05] appointed?

BLD06-ORG02-REP01: Once again, I don't know. Directly, is all I know. But I think in both of their cases . . . in fact, all three cases [pointing to the inter-organizational relationships diagram for the new-build construction sub-process (see Figure 14.12 on page 329)] all of those three companies had had an ongoing relationship with BLD06-ORG01 – particularly BLD06-ORG03 and BLD06-ORG05 over a number of years. I think BLD06-ORG03 had been involved with them, you know, doing, sort of, jobbing building work, if you like, decoration and whatever else – bits and bobs. And certainly BLD06-ORG05 had done an awful lot of work with them with regards to the services installations – its modification, improvement or whatever.

So those two organizations were very well known to BLD06-ORG01. I think BLD06-ORG04 had been involved previously, well, maybe not quite to the same extent. We were the new boys on the block, if you like. But not new to the individual firms, if I am making sense. I mean, we had not worked with them with that particular client [BLD06-ORG01], but we had all worked together, you know, on other jobs in the past.

BLD06-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did the client/end-user [BLD06-ORG01] possess?

BLD06-ORG02-REP01: BLD06-ORG03 had worked for BLD06-ORG01 many times before.

BLD06-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did your organization possess?

BLD06-ORG02-REP01: We had also worked with BLD06-ORG03 many times before.

BLD06-ORG02-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did you possess?

BLD06-ORG02-REP01: I, too, had worked with BLD06-ORG03 many times before.

BLD06-ORG02-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD06-ORG03-REP01] did you possess?

BLD06-ORG02-REP01: Well, I knew him, but through playing cricket. BLD06-ORG03-REP01 and I had known each other for some little while. But the actual individual that was working on that, which was . . . well, post-tender, was a chap called BLD06-ORG03-REP02. Sorry, pre-tender was BLD06-ORG03-REP02, and post-tender was BLD06-ORG03-REP03. I knew both of them from the social side of things. But no, I had not worked with either of them, including BLD06-ORG03-REP01, previously.

BLD06-ORG02-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific building design element?

BLD06-ORG02-REP01: Well, the design portion of the JCT lists those areas where the contractor [primary construction contractor], or more

specifically, the specialist subcontractor [secondary construction contractor], and through them the contractor [primary construction contractor] has a design responsibility, rather than the design team, as such, being responsible for the design. There were no nominations, in the sense that it was all domestic. I mean, that was the way the whole thing was set up. In fact, the way that it was set up, because it was a fast track situation, we, I think, were invited to a meeting. I can't remember whether it was the end of August or the beginning of September. I think it was the beginning/middle of September, in fact, and we were on site the following January. And they [BLD06-ORG01] were in occupation, finally, well, to begin with in October, with the final bit of handover being the following November. So that was pretty quick going, shall we, sort of, say? So as part of the recognition of the fact that the thing was a speedy exercise, it was decided that, in fact, the bill, when it went out or the tender invitation, anyway, went out initially, it would go out on the basis of the shell – the jacketing and the structural work – all being billed and quantified. But the finishes, in all of their various guises and glories, and services would be a series of provisional or PC sums. And each of those individual PC sum packages, you know, be it for windows, doors, or whatever it might have been, was tendered for by the contractor [BLD06-ORG06]. In other words, we provided the contractor [BLD06-ORG06] with the drawings and specifications. He, the contractor [BLD06-ORG06], then went off and sought, you know, tenders from various individuals. I think there were one or two exceptions; for example, windows. I think we went out as that was being done at the same time they [primary construction contractors] were tendering, if I am making any sense. As with the steelwork, again, they [secondary construction contractors] had to be tendering for that while the main contractors [primary construction contractors] were tendering. And what we did was we advised the main contractors [primary construction contractors], all of them, that we were on certain, you know, critical items, by approaching various people. I think the critical items were the steelwork, the windows, the roofing, and the M & E. Those four, if you call M & E one, those four major items, I am pretty sure it was that, were all being tendered for at the same time that the main contractors [primary construction contractors] were tendering. So in those particular cases we invited all the respective, sort of, members of the team. But what we did do was we wrote to, or advised, all the people that were tendering that we were going out for the windows to Joe Bloggs, Fred Smith or whatever, and that they [primary construction



contractors] had to voice an opinion, there and then, that they could cope with that relationship or not. In other words, if there was somebody on the list that they [primary construction contractors], for whatever reason – historically maybe – they didn't feel happy with, now was the time to yell. Because come the day, we will have a . . . you know, one of these people will be given to you, if you like, as your domestic subcontractor [secondary construction contractor]. So the main contractors [primary construction contractors] entered into the arrangement on that basis. And then later on, as I say, the other packages, internal doors or whatever it might have been, the actual tenders were sought by the main contractor [BLD06-ORG06]. And, well, not always me, but certainly the QS [BLD06-ORG03-REP01] was always present when the tenders came back and was party to the opening. So we actually saw the figures. It was an open book, if you like, situation.

BLD06-ORG02-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did the client/end-user [BLD06-ORG01] possess?

BLD06-ORG02-REP01: I think it is true that the structural engineer [BLD06-ORG04] had previously worked for BLD06-ORG01 before.

BLD06-ORG02-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did your organization possess?

BLD06-ORG02-REP01: Not as much as some of the other ones locally. But, I mean, over the years, yes, we have, on and off, worked with them. I mean, certainly, not long after I came, we were working with them on various jobs. Not necessarily me, personally, but, I mean, certainly the company. So in terms of how long the relationship goes back, I am not absolutely certain. But it's certainly into a number of tens of years, I suspect. I mean, we are not working with them at the moment, to the best of my knowledge, for instance. So, yes, it's a sporadic involvement. But it has been a long-term involvement, and, certainly, we know the characters there pretty well. So if tomorrow they were to come in and be part of a team again – as I said before, it's this sort of quasi-multi-disciplinary situation – given that the characters that come are the ones that we know, I mean, there would be no getting to know you, and we would know exactly who we were dealing with and you would simply get on with the job, you might almost say.

- BLD06-ORG02-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did you possess?
- BLD06-ORG02-REP01: No, I hadn't, personally. I mean, I'd known of them working with other colleagues, but I am pretty sure this was my first direct, you know, contact with them.
- BLD06-ORG02-INT01: How much previous experience of working with the building services engineering design consultant [BLD06-ORG05] did the client/end-user [BLD06-ORG01] possess?
- BLD06-ORG02-REP01: Oh, they have had a long-standing working relationship with them.
- BLD06-ORG02-INT01: How much previous experience of working with the building services engineering design consultant [BLD06-ORG05] did your organization possess?
- BLD06-ORG02-REP01: Not much. We had worked with them before, or I had worked with them before, you know. We'd worked with them on a job on \*\*\*\*\*, in fact. Now when was that? That finished in 19##. So, through 19## into 19##. So, yes, I knew them and knew the characters, again, that were involved, or the principle characters at least, anyway, that were involved. So, you know, when they were there, I was quite comfortable with that, because, again, there was no getting to know you.
- BLD06-ORG02-INT01: How much previous experience of working with the representative of the building services engineering design consultant [BLD06-ORG05-REP01] did you possess?
- BLD06-ORG02-REP01: Yes, as I say, I did know them and the characters there. I had worked with the project engineer [BLD06-ORG05-REP01] before.
- BLD06-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did the client/end-user [BLD06-ORG01] possess?
- BLD06-ORG02-REP01: I don't know whether they had. I don't think so, no. I mean, what we did with regards the main contractor [BLD06-ORG06], each of the design team members was asked to put forward a list of contractors [primary construction contractors] that he would recommend as being suitable for, you know, the work. We all did this, and from that we actually drew up a list of . . . I think it was fourteen names, if I vaguely recall. We then scored

these on, I can't remember the categories now – this was BLD06-ORG03-REP01's idea as much as anybody else's, so again he [BLD06-ORG03-REP01] might remember more what the categories were: you know, six or seven categories and you mark them out of ten or whatever it was – and we just did a totting-up exercise and the top six were the six that were invited to, you know, to tender. And in fact, as it happened, we were asked to go to seven, because I think the firm that finished seventh in the list – ORGANIZATION 6B, you know – had been used by BLD06-ORG01 in the Midlands, I think. And there were certain parts of the organization that were keen that they [ORGANIZATION 6B] should be used . . . well, not used necessarily, but certainly invited to tender for the work here as well; so, in fact, the list that was supposed to be six long became, in fact, seven long, as a result of that process. And I think ORGANIZATION 6B happened to be on my list, anyway; so that didn't particularly bother me. So that's the way, you know, that we devised the list.

BLD06-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did your organization possess?

BLD06-ORG02-REP01: Trouble getting things in the right chronological order. I mean, certainly, we have worked with them as a main contractor [primary construction contractor] before, and I think probably, yes. I think in \*\*\*\*\* . . . we'd already done with them at that time. I am trying to get them in the right order. I mean, certainly, it wasn't the first job that we'd done with them. And the one that I can think of, as I say, was the BLD06-ORG06's job . . . sorry, was the ORGANIZATION 6C job – my apologies – was either done just before or running pretty well concurrently with, you know, with this job.

BLD06-ORG02-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did you possess?

BLD06-ORG02-REP01: I hadn't, no.

BLD06-ORG02-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG02-REP01: Oh, I think as an organization they've got to be, you know, sort of, *very reputable*.

BLD06-ORG02-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG02-REP01: Well, as I said before, I mean, I've got a lot of time for all of the people there. I would go quite *reputable*, as opposed to *very reputable*.

BLD06-ORG02-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG02-REP01: Quite *reputable*.

BLD06-ORG02-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG02-REP01: Quite *reputable*.

BLD06-ORG02-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG02-REP01: Yes, I found them to be quite good. So I would rate them as quite *reputable*. As I say, it all depends upon personalities, you understand? And in this particular case I had no problem in relating to this particular guy [BLD06-ORG06-REP01] working for the main contractor [BLD06-ORG06]. I think, you know, a lot of the success of a job stems upon the ability to get on. Again, I keep wittering about this, but I really do think it's absolutely fundamental to the whole exercise that, you know, we got on. As I say, we didn't always have to agree, but by the same token, we didn't fall out either – if you understand the double-Dutch of that. And I think that's . . . well, I just honestly do think it's the be-all and end-all of a successful job, to be quite frank. And I think that, by and large, was pretty much true across the table, you know, people were able to communicate with one another. Again, I go back to the thing, on a good-humoured basis.

BLD06-ORG02-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc. to each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG02-REP01: I would say, probably, *several times weekly*, number 5 – I mean to draw a rational balance, if you like.

BLD06-ORG02-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG02-REP01: I would go for the same again, *several times weekly*, number 5.

- BLD06-ORG02-INT01: The structural engineering design consultant [BLD06-ORG04]?
- BLD06-ORG02-REP01: Well, again, I would, sort of, suggest that that probably is number 5, too.
- BLD06-ORG02-INT01: The building services engineering design consultant [BLD06-ORG05]?
- BLD06-ORG02-REP01: And the same again, number 5. I mean, I know that is a bit of a bore, but I think they would be on the 5.
- BLD06-ORG02-INT01: The primary construction contractor [BLD06-ORG06]?
- BLD06-ORG02-REP01: Yes, that's a difficult one. That's 6 pushing 7. Well, I think I would tend to lean towards 7, almost, in a way. Because once the building is on site and you develop a relationship with somebody, you know, not necessarily at the beginning, and certainly not necessarily at the end, but I mean, for a long while, by and large, the largest portion of communications would be telephone calls backwards and forwards. This would happen a number of times during the day. I mean, just in the normal course of events, I can't see that that doesn't happen, to be quite frank.
- BLD06-ORG02-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?
- BLD06-ORG02-REP01: I . . . you know, sort of, again, the sands of time diminish, but I don't think very often, at all. So I suppose *rarely* would be the situation there.
- BLD06-ORG02-INT01: The construction cost consultant [BLD06-ORG03]?
- BLD06-ORG02-REP01: *Rarely*, again.
- BLD06-ORG02-INT01: The structural engineering design consultant [BLD06-ORG04]?
- BLD06-ORG02-REP01: Well, again, I think 2 – *rarely*. In the sense that where there may have been conflict, because we had regular meetings and were regularly exchanging drawings, where conflict may have happened, it didn't. This was because we were talking to one another. I mean, it's Bob Hoskins' BT thing: "It's good to talk." Absolutely true. I mean, this is all part and parcel of this good-humoured, getting on with people bit that I am wittering on about. I mean,

you know, if you communicate and if you get on with somebody, you know, you're able to sort of . . . together, spot the rough waters and either, you know, together paddle through it or together avoid it. And to that extent, by pre-planning and by trying to look ahead, you know, we contrive the situation where, you know, the number of times that there was a problem, you know, was relatively small.

BLD06-ORG02-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG02-REP01: The same is true of BLD06-ORG05. With the structural engineers [structural engineering design consultant] there is always the classic battle of where do you put bracing in the building. We don't want it, because it mucks-up the window elevations and all of the rest of it. So in this particular case we talked about it, and we decided that the toilets ain't going to move, because they're going to be there for the duration. I mean, the offices in this building are constructed, well, with a better system than, I think, this is [pointing to the flexible/demountable partition walling system used to form the interview room]. But nonetheless, it's metal studs and plasterboards and insulation. So that's done especially because they may want to move stuff around. But the toilets, it was always deemed that they would be pretty well there for the duration. It was very unlikely that they would get moved. So it was decided that the bracing would take the form of a sheer concrete wall, with one in one direction and the other in the other direction; for example, one longitudinally within the building and one across the building. And so to that end we were able to avoid, you know, any cross-bracing. We might have, in other situations, you know, had conflict, if you like: "Ah, hang on, you've put cross-bracing here and we don't want it." And then whatever follows on. That didn't arise because, as I say, both parties . . . I mean, we'd got in quickly and said: "Look, we don't want any cross-bracing. We've got to think of another way of doing it." "Well, how about . . . ." There was no problem with that approach, and that's how we got around the situation. And similarly with the building services engineers [BLD06-ORG05] – I mean, not a point of conflict, but, I mean, ceiling heights in corridors where there was a concentration of services. We maybe had in mind that the height of the ceiling would be, you know, a certain height. And we had to drop it, because, you know, we recognized the logicity of putting services in the corridor. I mean, if only because, if later on you're messing about with them in the corridor, yes,

you're in peoples' way when they're moving backwards and forwards, but not in their way when they're trying to work in the office. So, you know, practical things like that. And so the ceiling had to be adjusted in height in order to suit the size of ducts when they'd worked out what the size of ducts were. But, again, I like to think that we talked about it as we were developing the design and it never became, you know, a point of conflict.

BLD06-ORG02-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG02-REP01: Well, I think I would go 2 as well with him.

BLD06-ORG02-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG02-REP01: I mean, I can't . . . again, I have to honestly, sort of, say, apart from one little thing, I can't think where there was any particular, you know, problem. I mean, that one thing was resolved. It was the detailing of the flap over a counter in the \*\*\*s' dining room. And in the event, there was a physical problem with it, as there happened to be a lot of tall guys and there was a case of: "We maybe are going to crease our foreheads if that goes in." So we had to, you know, take that out and devise another solution, which we did. But that aside, that was really right at the end when everybody was panicking – trying to get things finished off. But that is a point in case, you know. Had that been thought of in more detail or understood . . . I mean, what they saw improved was what they got. It was just that they didn't, you know, sort of, understand looking at the drawing, I don't think, the relative height of the way this flap was set in relation to one's forehead in the event. I mean, you know, had they been able to, perhaps, imagine it a little earlier on, again, this could have been designed out then rather than having the aggravation of having to design it out at, you know, the stage when it had actually . . . well, it was never actually put in, not permanently at least, anyway. It was in the throws of being put in. "Hang on, this could be a problem?" And as a result, another course of action was taken. But apart from that, I honestly can't think of major disputes. So on the scale I can't go for *never*. So, again, it would be 2 on that basis.

BLD06-ORG02-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG02-REP01: I can't remember one, in truth. So let's change and say *never*.

BLD06-ORG02-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG02-REP01: Well, again, if we call a dispute the discussions on, you know, how we dealt with certain problems, that would be *rarely*.

BLD06-ORG02-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG02-REP01: On a similar note to the structural engineer [BLD06-ORG04], *rarely*. So we contrived it to be *rarely* between us by, as I say, the fact that we talked, you know.

BLD06-ORG02-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG02-REP01: Well, *rarely*, again. I mean, there is one here, but I mean it wasn't a weekly or even monthly occurrence. I mean, from time-to-time, you know: "You're holding us up." But nothing that became a festering sore, as you might almost, sort of, say. And I think that's reflected in the fact that I was able to extend the contract in the way that I did. If you see what I mean? In other words, I had an indication of there being an ongoing problem, and this would have been the fact that, you know, sort of, only parts, if any, perhaps of the extension of time would have been granted.



## 25.2 INTERVIEW TRANSCRIPT BLD06-TRAN02

Organization Role: Construction Cost Consultant

Organization Code BLD06-ORG03

Respondent Role: Boundary Representative for BLD06-ORG03

Respondent Code: BLD06-ORG03-REP01

Interviewer Code: BLD06-ORG03-INT01

BLD06-ORG03-INT01: Who was your client?

BLD06-ORG03-REP01: The instant point of contact was a chap called BLD06-ORG01-REP01 who was BLD06-ORG01's project manager, and he was the man with whom we had the immediate day-to-day contact.

BLD06-ORG03-INT01: What type of organization was the client/end-user (BLD06-ORG01)?

BLD06-ORG03-REP01: Well, they're actually a manufacturing industry. But because of the location of their office, in an almost domestic environment, they were probably seen more as a commercial organization than a manufacturer.

BLD06-ORG03-INT01: Why did the client/end-user [BLD06-ORG01] decide to commission the building project?

BLD06-ORG03-REP01: Why, yes . . . because he had lost the use of his accommodation down on the Quayside, which was compulsory purchased when that development was undertaken.

BLD06-ORG03-INT01: How much previous experience of the building process did the client/end-user [BLD06-ORG01] possess?

BLD06-ORG03-REP01: He's a learned client. The particular chap [BLD06-ORG01-REP01] with whom we dealt is a building surveyor, and he's therefore got more experience in alterations and refurbishment works than perhaps he has with new-build. But, nevertheless, over the years, he does have extensive . . . construction experience.

BLD06-ORG03-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did your organization possess?

- BLD06-ORG03-REP01: We had worked with them extensively. Largely, again, on refurbishment/improvement type of schemes, rather than new construction works. But quite extensive.
- BLD06-ORG03-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did you possess?
- BLD06-ORG03-REP01: Yes, I had worked with them, again, on refurbishment/improvement types of schemes.
- BLD06-ORG03-INT01: How much previous experience of working with the client's/end-user's representative [BLD06-ORG01-REP01] did you possess?
- BLD06-ORG03-REP01: Yes, again, in respect of the previous refurbishment/improvement type of works.
- BLD06-ORG03-INT01: How did your organization become involved with the client/end-user [BLD06-ORG01] during this building project?
- BLD06-ORG03-REP01: Largely, I suspect, through a fairly long-standing relationship with BLD06-ORG01.
- BLD06-ORG03-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?
- BLD06-ORG03-REP01: It was . . . it started as financial control. They had to make a decision on whether they developed on this site or whether they occupied one of the buildings that were being built down on the \*\*\*\*\*, which, in effect, replaced the site that they occupied. And that was where we came in. We did some feasibility work for them and reached a point where they felt that, for, I think, financial reasons and operational reasons and for corporate reasons, they preferred to develop in the \*\*\*\*, rather than to occupy new premises on the \*\*\*\*\*. Albeit that the \*\*\*\*\* was the original ORGANIZATION 6D base, who were acquired by BLD06-ORG01 some years ago. But the balance lay with developing in the \*\*\*\*. So we became a development, stroke, financial consultant.
- BLD06-ORG03-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?
- BLD06-ORG03-REP01: Me, personally? Well, I was the team-leader, if you like, of the BLD06-ORG01 commission. I was the partner in charge of it.

BLD06-ORG03-INT01: How would you describe the building project?

BLD06-ORG03-REP01: I would describe it as a prestigious project – one which was being occupied by the directors of the company. It is their UK headquarters, and so they feature quite prominently in the organization. It was also a training suite where personnel from various levels and various parts of the organization come for training courses. And, therefore, the building was really very exposed to the organization nationally, and as such, really, was extremely high profile.

BLD06-ORG03-INT01: Were there any unusual or unforeseen site difficulties?

BLD06-ORG03-REP01: There was a gas-main which did provide an element of difficulty. There was also the integration of a new heating system from the new development with the existing development. So there had to be some enabling works to enable that to take place. Generally speaking, though, it turned out to be, in the main, a fairly conventional construction process without, really, too many difficulties.

BLD06-ORG03-INT01: What was the original budget for the building project at the briefing stage?

BLD06-ORG03-REP01: In terms of pounds, not strictly, but generally it was determined by the compensation that he [BLD06-ORG01] received when the building on the \*\*\*\*\* was compulsory purchased. That set the general level of expenditure.

BLD06-ORG03-INT01: What was the cost estimate of the building project after the scheme design stage?

BLD06-ORG03-REP01: I think it had increased, because, I think, there was an element of betterment in the design and the occupied premises. I think their actual brief turned out to be in excess of what they'd originally planned. So, to that extent, it was more expensive.

BLD06-ORG03-INT01: Who was responsible for the betterment of the design?

BLD06-ORG03-REP01: It was the personnel director of the company, who was in charge of building and property.

BLD06-ORG03-INT01: Was there any extension of time?

BLD06-ORG03-REP01: There was a delay, yes. There was a delay, which occurred early on. A delay occasioned by, I think, some work in the ground and difficulty with steelwork delivery.

But it was a delay that we were able to deal with fairly early on, and we found that it didn't really raise its head extensively throughout the construction programme.

BLD06-ORG03-INT01: What type of construction contract was used?

BLD06-ORG03-REP01: It was a fairly standard JCT 80 contract. I say fairly standard in that it only had a few minor modifications. But it needed to be procured very quickly and what we did was, in effect, almost a two-stage tender, because we packed the original tender documents full of provisional sums and let them competitively through the main contractor [BLD06-ORG06], almost as a management contractor, as the programme continued.

BLD06-ORG03-INT01: How was the primary construction contractor [BLD06-ORG06] appointed?

BLD06-ORG03-REP01: The main contractor [BLD06-ORG06] went through a tendering exercise. There was a series of interviews where a short list of four or five was selected, and then they all tendered conventionally on this . . . well, it was almost a two-stage tender. It was a bit better than a two-stage tender. I think we measured the majority of the structure, and then we asked for percentages, on-cost percentages, and discounts on the provisional sums. So they were adjusted in accordance with that on the basis of subsequent measured packages.

BLD06-ORG03-INT01: What was the reason behind this fast procurement method? Why was this decision taken when the client/end-user [BLD06-ORG01] required a quality building?

BLD06-ORG03-REP01: I think that it was to re-house the people who were in occupation at the \*\*\*\*\*. I think that it was the demolition of that building that drove this programme. Whether, in the event, that was the way it turned out, I am not sure. But I think that was what originally established the construction programme.

BLD06-ORG03-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?

BLD06-ORG03-REP01: The majority of the subcontracts [secondary construction contracts] were actually designed by the design team. They may well have . . . there were the fairly conventional elements of subcontractor [secondary construction contractor] design in mechanical and electrical

installations [building services engineering design installations]. But in the main, they were consultant designed, as indeed was the shop-fitting and major joinery items. So, in the main, it was design team prescribed.

BLD06-ORG03-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did your organization possess?

BLD06-ORG03-REP01: We have had extensive experience of them over the years. A lot of contact.

BLD06-ORG03-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did you possess?

BLD06-ORG03-REP01: Yes, I too have had extensive contact with them.

BLD06-ORG03-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD06-ORG02-REP01] did you possess?

BLD06-ORG03-REP01: Yes, I had worked with him before.

BLD06-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did your organization possess?

BLD06-ORG03-REP01: Quite extensive. Quite extensive. We've worked on several projects together.

BLD06-ORG03-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did you possess?

BLD06-ORG03-REP01: Yes, I too have had quite extensive experience with them.

BLD06-ORG03-INT01: How much previous experience of working with the representative of the structural engineering design consultant [BLD06-ORG04-REP01] did you possess?

BLD06-ORG03-REP01: Yes, I have come into contact with him before during previous projects.

BLD06-ORG03-INT01: How much previous experience of working with the building services engineering design consultant [BLD06-ORG05] did your organization possess?

BLD06-ORG03-REP01: Again, quite extensive. We worked on several projects together in the past.

- BLD06-ORG03-INT01: How much previous experience of working with the building services engineering design consultant [BLD06-ORG05] did you possess?
- BLD06-ORG03-REP01: Yes, I too have worked with them on several projects in the past.
- BLD06-ORG03-INT01: How much previous experience of working with the representative of the building services engineering design consultant [BLD06-ORG05-REP01] did you possess?
- BLD06-ORG03-REP01: Yes, I have worked with him before.
- BLD06-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did your organization possess?
- BLD06-ORG03-REP01: Yes, we have come in contract with them before on several projects.
- BLD06-ORG03-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did you possess?
- BLD06-ORG03-REP01: Yes, I, too, have come in contact with them before.
- BLD06-ORG03-INT01: How much previous experience of working with the representative of the primary construction contractor [BLD06-ORG06-REP01] did you possess?
- BLD06-ORG03-REP01: I had never worked with the project manager on site. But the chap [BLD06-ORG06-REP01] who actually ran the job, I'd never worked with him either.
- BLD06-ORG03-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?
- BLD06-ORG03-REP01: 5.
- BLD06-ORG03-INT01: The architectural design consultant [BLD06-ORG02]?
- BLD06-ORG03-REP01: 5.
- BLD06-ORG03-INT01: The structural engineering design consultant [BLD06-ORG04]?
- BLD06-ORG03-REP01: 4.

BLD06-ORG03-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG03-REP01: 4.

BLD06-ORG03-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG03-REP01: 5.

BLD06-ORG03-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG03-REP01: From us to the client? How often? I would think *several times monthly*. This is number 3.

BLD06-ORG03-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG03-REP01: Now is this where we are providing information to them or is this the interchange of communication both ways?

BLD06-ORG03-INT01: The extent to which your organization provided information.

BLD06-ORG03-REP01: On the basis that several is more than once, I would go for number 3.

BLD06-ORG03-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG03-REP01: Number 2.

BLD06-ORG03-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG03-REP01: 1 – *never*.

BLD06-ORG03-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG03-REP01: 3 – *quite often*.

BLD06-ORG03-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG03-REP01: 2.

BLD06-ORG03-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG03-REP01: 3.

BLD06-ORG03-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG03-REP01: 3.



## 25.3 INTERVIEW TRANSCRIPT BLD06-TRAN03

Organization Role: Structural Engineering Design Consultant

Organization Code BLD06-ORG04

Respondent Role: Boundary Representative for BLD06-ORG04

Respondent Code: BLD06-ORG04-REP01

Interviewer Code: BLD06-ORG04-INT01

BLD06-ORG04-INT01: Who was the client organization?

BLD06-ORG04-REP01: Well, our client, directly, was BLD06-ORG01, because our appointment was with them. As far as the design work was concerned, the lead consultant was the architect [architectural design consultant], BLD06-ORG02, who obviously, probably, did the most direct interface with the client [BLD06-ORG01], and they brought up the main ideas that went into the project. And they acted as lead consultant/co-ordinator of the work of structures [structural engineering design consultant] and services [building services engineering design consultant] and the QS [construction cost consultant] as well.

BLD06-ORG04-INT01: What type of organization was the client/end-user [BLD06-ORG01]?

BLD06-ORG04-REP01: BLD06-ORG01? Well, they're a commercial organization and they're obviously heavily involved in the \*\*\*\*\* market – quite a major player, actually, because they're based overseas. But this end, as far as I know, is just one wing of their empire. But I think the people at this end are still subject to overall control from mainland Europe – there's a large office there.

BLD06-ORG04-INT01: Why did the client/end-user [BLD06-ORG01] decide to commission the building project?

BLD06-ORG04-REP01: I think for quite sometime, actually, they'd been overcrowded at their city centre office. Quite apart from their \*\*\*\*\* situation, they've had a set of Portakabins on the site as temporary accommodation where there has been some staff, who've been, sort of, housed in these quite nice Portakabins. But obviously the accommodation wasn't quite adequate, and then when their property on the \*\*\*\*\* was compulsory purchased, I think they had to

get out and they had to find accommodation elsewhere.  
So they came to the city centre.

BLD06-ORG04-INT01: How much previous experience of the building process did the client/end-user [BLD06-ORG01] possess?

BLD06-ORG04-REP01: They had a slight problem with this one in a sense, because there was a man called BLD06-ORG01-REP01 who was their, sort of, building advisor. I mean, he was employed by BLD06-ORG01, but he was an architect [architectural design consultant] by profession. He understood the building-side very well, and he was there during the . . . most of this project, I think. We've since done work for them after he retired, and they've become a lot less familiar with the building scene than they were before. But that particular man led them through it pretty well and, you know, they are reasonably au fait with what goes on in the building industry.

BLD06-ORG04-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did your organization possess?

BLD06-ORG04-REP01: Yeah, quite a bit. We'd been working on the \*\*\*\* site for a while. They'd had problems with some of the existing buildings on the site, you know, rainwater getting in and this sort of thing. So we'd been advising them on that. I think, before this job started, we designed a new car park for them on part of the site, and we refurbished another car park later on. So we've been involved with them over a number of years prior to this project.

BLD06-ORG04-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did you possess?

BLD06-ORG04-REP01: Yes. Well, it's mainly myself and BLD06-ORG04-REP02, who is a senior engineer here. We're the two main contacts here.

BLD06-ORG04-INT01: How much previous experience of working with the client's/end-user's representative [BLD06-ORG01-REP01] did you possess?

BLD06-ORG04-REP01: Yes, as I said, we'd worked with them on various other buildings. So BLD06-ORG01-REP01 was the contact at that time. It's changed now, because he has retired.

BLD06-ORG04-INT01: How did your organization become involved with the client/end-user [BLD06-ORG01] during this building project?

BLD06-ORG04-REP01: Well, I think they obviously realized their need for additional accommodation and, as with most clients, they put together a brief which defined what sort of square metreage for what category of staff was required. And, you know, they wanted training facilities and conference facilities in the building and all of this sort of thing. So they drew up the brief, and then they said: "Well, we really do need an architect to design this for us. Who could we use?" And I can't remember whether they asked for our advice, or whether they approached BLD06-ORG02 direct, but certainly, we'd worked with BLD06-ORG02 before, and it might have been jointly that . . . I think they possibly asked us, you know: "Which architects would you suggest?" And I think we may well have put BLD06-ORG02 name into their minds. Quite apart from them thinking about BLD06-ORG02 from other avenues as well.

BLD06-ORG04-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did the architectural design consultant [BLD06-ORG02] possess?

BLD06-ORG04-REP01: No, they hadn't worked with them at the \*\*\*\* site before.

BLD06-ORG04-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD06-ORG04-REP01: Well, we acted as structural design consultants [structural engineering design consultant] and, as the architect [architectural design consultant] developed his sketch drawings, we worked along side them giving them structural advise, saying: "Well, you'll need columns here, there, and everywhere." And: "You can manage this sort of span, economically. For your roof you'll need a light steel roof, because it's more economical." We also advised them on things like foundations. We did a site investigation with boreholes: examining ground conditions. One of the features of the site was that there were a number of mature trees on the site, which affect the ground. They cause clay to swell and shrink according to the seasons. So we advised them on protection against that sort of movement – ground movements. And then, eventually, as the design progressed, we developed structural drawings, drew-up structural specifications, and that was the contribution to the main contract documents going out to tender. And then when the contract was let, we went on to site on a, sort of, daily visiting basis and supervised the work going on. So we took it right from

the very start and right the way through to the end, really. But just mainly from the structural side.

BLD06-ORG04-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD06-ORG04-REP01: Well, I was the technical director in charge of the job. I suppose, really, BLD06-ORG04-REP02, as mentioned before, he was the senior engineer on the job. He did the bulk of the actual physical design work, along with another structural engineer here. But I was, sort of, overseeing his work. He would discuss things with me, and we would jointly go to design meetings together – usually. And, you know, I did the specifications for the job; generally looked at what was going on; generally made sure that checks were being made, and drawings were being checked, etc., etc. And, you know, just making sure that things were keeping on track and that information was being supplied to the architect [BLD06-ORG02] and to the services engineer [BLD06-ORG05] when required, and the QS [BLD06-ORG03] for bill measurements, as well. I also acted as the point of contact here.

BLD06-ORG04-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did your organization possess?

BLD06-ORG04-REP01: Quite a lot. We've done quite a large hospital project with them in \*\*\*\*\*, for . . . oh, I don't know. It went on for about six or seven years, I suppose. And I think we'd worked with them before that. So we've had a long relationship with BLD06-ORG03, over quite a wide variety of projects over the years.

BLD06-ORG04-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did you possess?

BLD06-ORG04-REP01: Oh, yes, quite frequently.

BLD06-ORG04-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD06-ORG03-REP01] did you possess?

BLD06-ORG04-REP01: Well, BLD06-ORG03-REP01, I've certainly worked with before, because we worked with them on a . . . . We had a couple of projects where we were helping a local authority with two housing estates that they'd built. They were actually suing the contractor [primary construction

contractor] for not a rather less-than-perfect job. BLD06-ORG03 were the quantity surveyors [construction cost consultant], ORGANIZATION 6E were the architects [architectural design consultant], and we were structural consultants [structural engineering design consultant]. We were, sort of, putting together an analysis of the faults in these two estates and costing the remedial works. So we worked with BLD06-ORG03 for quite a long time on that, and BLD06-ORG03-REP02 was the project QS on that one. BLD06-ORG03-REP03 also was involved there. But I think on this one . . . I am sure it was BLD06-ORG03-REP01 and BLD06-ORG03-REP02 were to the two. I mean, BLD06-ORG03-REP02 and I had worked a lot on the hospital project in \*\*\*\*\*, and I knew him socially as well. So I've had quite a long relationship with him.

BLD06-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did your organization possess?

BLD06-ORG04-REP01: Well, as I mentioned before, we have certainly worked before with BLD06-ORG02 on several projects over the years.

BLD06-ORG04-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did you possess?

BLD06-ORG04-REP01: Well, from quite a way back, we've designed various projects with them. We did an industrial estate with them on \*\*\*\*\*. We've done one or two conversion jobs. I mean, we've probably done four or five jobs with them over the years, I suppose.

BLD06-ORG04-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD06-ORG02-REP01] did you possess?

BLD06-ORG04-REP01: Yes, the job on \*\*\*\*\* – the industrial estate – and the conversion job that I was talking about. He was the project leader on both of those. So we were the structural consultants [structural engineering design consultant] in each case.

BLD06-ORG04-INT01: How much previous experience of working with the building services engineering design consultant [BLD06-ORG05] did your organization possess?

BLD06-ORG04-REP01: I think the first time that we'd ever worked with BLD06-ORG05 was on this BLD06-ORG01 project.

BLD06-ORG04-INT01: To what extent did you find this new professional relationship different from the other well established professional relationships?

BLD06-ORG04-REP01: Well, not really. I say . . . hang on. This particular project . . . was probably the third or fourth job that we'd done with BLD06-ORG01 over the years. BLD06-ORG05 had actually been involved with other jobs we'd done with BLD06-ORG01. So I am not quite . . . what I was saying before was that it was only when we started working with BLD06-ORG01 that we started to work with BLD06-ORG05. But this particular job was not the first one we'd done involving BLD06-ORG05. So we were aware of them, and we'd worked with them before in that sense. But not as long as BLD06-ORG02 and BLD06-ORG03.

BLD06-ORG04-INT01: How much previous experience of working with the building services engineering design consultant [BLD06-ORG05] did you possess?

BLD06-ORG04-REP01: Well, yes, because I've worked on other BLD06-ORG01 jobs. I am just trying to think what we'd actually done. There was nothing . . . I mean, this is by far the biggest job we've done. I think they were just one or two small modification jobs. Because BLD06-ORG05 and ourselves, and BLD06-ORG03, really, have been involved with BLD06-ORG02 for many years – almost as a term consultancy arrangement. BLD06-ORG05 are always involved, because they're always altering the buildings in one way or another. And there is always service alterations, so they use BLD06-ORG05 all of the time. So that's, really, how we'd worked with them before.

BLD06-ORG04-INT01: How much previous experience of working with the representative of the building services engineering design consultant [BLD06-ORG05-REP01] did you possess?

BLD06-ORG04-REP01: Well, there are two of them, there's BLD06-ORG05-REP02 and . . . oh dear, what's the other guy's name? I can see him so clearly! Oh, BLD06-ORG05-REP01. Again, the only circumstances that we'd worked with them before were on BLD06-ORG01 work. But this was the first major job that we'd done with them.

BLD06-ORG04-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific structural engineering design element?

- BLD06-ORG04-REP01: Well, not really. However, a couple of aspects spring to mind. Once the contract was let, the building had a steel frame, and our normal procedure is to design the main members of the steel frame. But the actual connections between the members are designed by the steelwork subcontractor [secondary construction contractor]. So that's part of the structural design that's actually handled by the contractor [secondary construction contractor], in a sense. The same with precast concrete floors as well, because the ground floor had a series of pre-stressed precast floor units – designed by ORGANIZATION 6F. The design of those units was handled by the subcontractor [secondary construction contractor] who supplied the units. We specify what the load was they had to carry, what the spans were, where the beams were, and so forth. And then we said: "Right, you get on with it and you design it as a unit." To a degree, we knew what they were going to be, because they produce published literature on these things, and we knew, basically, what sort of units we were going to finish up with. We knew the depths that they have to arrange the pre-stressing stands and that sort of thing.
- BLD06-ORG04-INT01: How much experience of working with the secondary construction contractors and suppliers did your organization possess?
- BLD06-ORG04-REP01: This office? ORGANIZATION 6F we had. I am just trying to think what jobs we'd done with them. I can't think what specific jobs we've done with them, but we certainly have done jobs involving ORGANIZATION 6F \*\*\*\*\* \*\*\*\*\* \*\*\*\*\* The steelwork subcontractor [secondary construction contractor] has since gone bust, unfortunately. They were based in \*\*\*\*\*. I am just trying to think of their name. We hadn't actually used them in this office before. But our practice is nationwide and our main offices are in \*\*\*\*\* and we'd used them a lot up in \*\*\*\*\*. So we, as a total company, we were very familiar with their work.
- BLD06-ORG04-INT01: To what extent do you exchange information between your regional offices?
- BLD06-ORG04-REP01: Yes, we do. Normally, when the name is put forward, we either go and inspect the works, or we, sort of, ask around within the company if anybody has used these people before and what are they like – just to make sure that they are OK.

BLD06-ORG04-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did your organization possess?

BLD06-ORG04-REP01: I honestly don't know. I think one of the blokes, who is my fellow director in the structures division, worked with BLD06-ORG06 before on a civils job. But that's not quite the same thing, is it? Certainly, other members of the staff who weren't involved with this job who worked with BLD06-ORG06 on other work, I mean, the ORGANIZATION 6G job that we did on \*\*\*\*\*. Some of the people . . . I mean, the partner who runs the office now was working with a government organization when the ORGANIZATION 6G project was done, and he did some work on drainage with BLD06-ORG06 then. I am just trying to think . . . I don't think we . . . certainly, the team who worked on this job, we hadn't worked with BLD06-ORG06 before.

BLD06-ORG04-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG04-REP01: I think they were OK. I would say number 5.

BLD06-ORG04-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG04-REP01: Well, I think they were OK as well. So number 5.

BLD06-ORG04-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG04-REP01: I think we had a good time on this job. I am just trying to think if they did anything to upset us. No, not really. I would count them as *very reputable*, number 5.

BLD06-ORG04-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG04-REP01: Probably about 4<sup>1/2</sup>, I should think, I don't know. There's not much to choose between them. I would say *very reputable*. They certainly didn't cause us any problems. I can think of plenty who have, but not them. Well, I haven't actually been to their office, so I don't know, but I sense that they're a smaller organization than any of the other three here. But, certainly, they produced the information when we needed it. I am just trying to think if there was anything that they did that caused us problems. You sometimes get into problems with holes through the structure changing, but that's almost, in a sense, the nature of M & E engineering [building services engineering



design], you know. That's why I would tend to put them between 4 and 5, rather than absolutely perfect. I think I would probably say that about any M & E engineer [building services engineering design consultant]. So I shall say number 4 in this case.

BLD06-ORG04-INT01: To what extent do you think the size and image of an organization would contribute to and determine your perception of organizational reputation?

BLD06-ORG04-REP01: I suppose it would, very slightly. I tend to go on the quality of the service that I got from them, really. When you do a job with someone, you realize . . . you become much more aware of the quality of their work. I mean, the nice thing about BLD06-ORG05 – in fact, everybody, really – was you dealt with people at director level all of the time. You can get some practices who, sort of, shove out the lowest lad onto the job. And he doesn't give a very good image of the place. But I don't think anybody on that team did that. Everybody seemed to know what they were doing.

BLD06-ORG04-INT01: To what extent do you think your perception of organizational reputation would be reduced if you had to communicate with somebody on a lower hierarchical level?

BLD06-ORG04-REP01: Yeah. I think if I felt that I was being asked to communicate with someone who didn't really quite grasp everything that was going on, I would then say: "Why are you not paying proper attention to this job?" So I would want to see someone who had overall control of the situation and an overall understanding of the situation representing that company.

BLD06-ORG04-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG04-REP01: Again, I would probably put them between *very reputable* and *reputable*. Probably *reputable*, I suppose. Yes, number 4.

BLD06-ORG04-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contracts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all the client/end-user [BLD06-ORG01]?

BLD06-ORG04-REP01: It probably wasn't all that much, because although we were directly appointed by the client, we were working as

a design team. So the architect [BLD06-ORG02] was the main point of contact with the client. They therefore had a lot more contact with the client than we did. So I suppose it would be slightly more than *once monthly*, I would have thought, because we had regular meetings as a design team with them. But there would be intermediate contacts with them as well. So I suppose *several times monthly* would be better.

BLD06-ORG04-INT01: To what extent did you find it difficult having to communicate to your client/end-user [BLD06-ORG01] through the architectural design consultant [BLD06-ORG02], who had no previous experience of working with the client/end-user?

BLD06-ORG04-REP01: No, not really. BLD06-ORG02 have . . . you know, we've worked with BLD06-ORG02 before – with them as lead consultant. So we were very comfortable with that situation. They ran the job well; passed on information when it was needed to be passed on; asked us when they needed to ask us what to do here, there and everywhere. So I don't think there was any difficulty at all, really.

BLD06-ORG04-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG04-REP01: Probably *several times weekly*, I would have thought, you know, quite frequently.

BLD06-ORG04-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG04-REP01: Even more often than that, on average, I would have thought. It's between *several times daily* and *once daily*. As you say, it varies. In the early stages it was pretty intense. But as the project develops and goes on, it becomes less frequent. So I would say it was between 6 and 7, really. However, I would lean more heavily toward 7.

BLD06-ORG04-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG04-REP01: Not as much. Well, it's between 4 and 5, I suppose. Maybe, 4.

BLD06-ORG04-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG04-REP01: Well, it was less frequently than . . . probably *several times monthly*, I suppose.

- BLD06-ORG04-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?
- BLD06-ORG04-REP01: Well, *rarely*, I would say.
- BLD06-ORG04-INT01: The construction cost consultant [BLD06-ORG03]?
- BLD06-ORG04-REP01: The same. I mean, I honestly . . . I mean, should I say *never*, if I can't remember a case where we did? I honestly can't remember, so *never*.
- BLD06-ORG04-INT01: The architectural design consultant [BLD06-ORG02]?
- BLD06-ORG04-REP01: That's probably *rarely*, I would think.
- BLD06-ORG04-INT01: The building services engineering design consultant [BLD06-ORG05]?
- BLD06-ORG04-REP01: Again, *rarely*. There seems to be an awful big gap between *rarely* and *quite often* on your scale.
- BLD06-ORG04-INT01: The primary construction contractor [BLD06-ORG06]?
- BLD06-ORG04-REP01: I wouldn't have thought it was *quite often*. It was between . . . *rarely*, really, I suppose. Oh, I don't know about that. It was more often than anybody else, I suppose. It's being pessimistic saying *quite often*. No, *rarely*.
- BLD06-ORG04-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?
- BLD06-ORG04-REP01: *Never*.
- BLD06-ORG04-INT01: The construction cost consultant [BLD06-ORG03]?
- BLD06-ORG04-REP01: No, *never*.
- BLD06-ORG04-INT01: The architectural design consultant [BLD06-ORG02]?
- BLD06-ORG04-REP01: No, *never*.
- BLD06-ORG04-INT01: The building services engineering design consultant [BLD06-ORG05]?
- BLD06-ORG04-REP01: *Never*.

BLD06-ORG04-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG04-REP01: Probably, *rarely*, I would say.

BLD06-ORG04-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD06-ORG04-REP01: Quite wide. We do normal structural and civil engineering for building works. We do highways, transportation studies, environmental engineering – which is dealing with contaminated land – water supply, landscaping, landscape architecture, town planning, geotechnical work, site investigations. As a practice, we do project management and we do CDM planning supervisor work – it's quite a large part of our work now.

BLD06-ORG04-INT01: Have you ever been the lead consultant over the architectural design consultant [BLD06-ORG02] before?

BLD06-ORG04-REP01: Yes, we have, with a garage on \*\*\*\*\*. They were just the architectural design consultant and we were the lead consultant.

BLD06-ORG04-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?

BLD06-ORG04-REP01: The whole works. The whole thing, really. I mean, commercial, public bodies, private industry, a lot of the utilities – water companies and highways work – we do a lot of work with them. We've done a lot of work on the local rail network – we've designed bridges over rivers. Major manufacturing industries, government-funded work. It's as wide as you can think, really. We've done a lot in the petrochemical industry, and we did a lot of work in the \*\*\*\*\* oil rigs at one time. And the decontamination side: we do a lot of work with the oil companies in decontaminating their sites and selling them on for redevelopment. We also do a lot of work in the retail sector. We do a lot of work for ORGANIZATION 6H and other retail chains as well. You know, it's just absolutely broad. Anybody who wants us, can have us!

BLD06-ORG04-INT01: How many years has your organization been established?

BLD06-ORG04-REP01: Since 19##. So that's 94 years now.

## 25.4 INTERVIEW TRANSCRIPT BLD06-TRAN04

Organization Role: Building Services Engineering Design Consultant

Organization Code BLD06-ORG05

Respondent Role: Boundary Representative for BLD06-ORG05

Respondent Code: BLD06-ORG05-REP01

Interviewer Code: BLD06-ORG05-INT01

BLD06-ORG05-INT01: How much previous experience of the building process did the client/end-user [BLD06-ORG01] possess?

BLD06-ORG05-REP01: Very little. Very little on the new build. I mean, the majority of the work that the client [BLD06-ORG01] has carried out over the years has tended to be refurbishment of . . . I don't know if you know the building – ORGANIZATION 6D House. It's maybe constructed in the '50s. It was pretty shabby about eleven or twelve years ago. And we started refurbishing it wing by wing to what I consider to be a fairly high standard. I mean, it was only when all of the wings were refurbished that they went ahead with this project, which is the new extension. So the client's [BLD06-ORG01] experience prior to that had been more on the refurbishment rather than new-build.

BLD06-ORG05-INT01: To what extent did the client's/end-user's [BLD06-ORG01] inexperience of new-build create any difficulties?

BLD06-ORG05-REP01: It didn't create any problems for ourselves. The client's representative [BLD06-ORG01-REP01] on the job was, I think, an architectural technician by trade, and he obviously new the building industry. So it didn't come up with any problems from our point-of-view.

BLD06-ORG05-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did your organization possess?

BLD06-ORG05-REP01: We've done a lot of refurbishment work for BLD06-ORG01, and a certain amount of new-build. I mean, we've worked for BLD06-ORG01 for, I don't know, maybe fifteen years at different establishments.

BLD06-ORG05-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did you possess?

BLD06-ORG05-REP01: Yes, I had worked with BLD06-ORG01 for most of this time.

BLD06-ORG05-INT01: How much previous experience of working with the client's/end-user's representative [BLD06-ORG01-REP01] did you possess?

BLD06-ORG05-REP01: Yes, we've had a well, long established relationship, and so I've come into contact with him many times before.

BLD06-ORG05-INT01: How did your organization become involved with the client/end-user [BLD06-ORG01] during this building project?

BLD06-ORG05-REP01: Through the client [BLD06-ORG01]. I mean, for all of the work that we've done with them in the past, they've never employed an architect [architectural design consultant] before. Because, like I say, the client's representative [BLD06-ORG01-REP01] was an architectural technician, and it tended to be refurbishment works. So they didn't really need an architect [architectural design consultant] in the past. I mean, prior to the job starting, when it was first . . . you know, in the early days of it before any design teams were selected, the client [BLD06-ORG01] asked . . . I know he spoke to BLD06-ORG03-REP01 about architects [architectural design consultants] that he would recommend, and he spoke to me as well and asked what architects [architectural design consultants] we had dealt with in the past and who we could recommend. And I think we gave him two or three names, and BLD06-ORG03-REP01 gave him two or three names. And I think the common denominator was BLD06-ORG02. And they got BLD06-ORG02 in and interviewed them. And that's how they became involved.

BLD06-ORG05-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?

BLD06-ORG05-REP01: Well, it's relatively straightforward. We were totally responsible for the design of the mechanical and electrical services within the – it's now called the South Block – the wing. Totally responsible for getting the brief off the client and integrating it with the architectural design which was done by BLD06-ORG02. Also, responsible for the costing element of it and tendering the job. It was tendered in the conventional manner. I don't know whether BLD06-ORG02-REP01 has explained that? Well, I mean, the services subcontractors [secondary

construction contractors] were domestic subcontractors [secondary construction contractors] of BLD06-ORG06. But the problems we've had with domestic subcontracts – [secondary construction contractors] in the past have been horrendous; because the builder [primary construction contractor] tends to go to everybody and his brother, and inevitably it's the bottom-line that matters. Even when the tenders come in, you're not guaranteed that he'll [primary construction contractor] go to that subcontractor [secondary construction contractor]. He'll [primary construction contractor] then start to hawk around. We put this to the client [BLD06-ORG01] at a very early date, together with the quantity surveyors [BLD06-ORG03]. We had a chat with BLD06-ORG03-REP01 and we jointly approached the client [BLD06-ORG01], with BLD06-ORG02 as well, and suggested that we should avoid this situation, because BLD06-ORG01 are the sort of client that want the best, and they are prepared to pay for it. They don't want people coming in who've got the job at a dirt-cheap price and try to cut corners. So we actually tendered the mechanical and electrical services [building services engineering installation] separate to the building. And as we sent it out to them, the building tenders came back with provisional sums in for the M & E. And the building tenderers were . . . the basis of them tendering was that they'd accept this situation – that they would take onboard the M & E subcontractors [secondary construction contractors] that we told them on a domestic basis from a select list. So we tendered the M & E totally separate, got them back – they were returned to BLD06-ORG01 as opposed to the builders [BLD06-ORG06] – and we sat in the QS's [BLD06-ORG03's] office with the client's representative [BLD06-ORG01-REP01] and actually opened these tenders. And as it happened, the lowest tender . . . the lowest tenderer on the mechanical actually qualified his tenders - he put in something to qualify his tender, which was a minor thing, but it was just discounted because of that. So the M & E [building services engineering installation] was tendered in what I would say was the conventional manner. And the guys who came in the lowest, albeit this one, which was discarded because it was qualified, done the job.

BLD06-ORG05-INT01: Who was responsible for the valuation of the work completed by the building services engineering secondary construction contractors?

BLD06-ORG05-REP01: The valuation – financially – for interim payments? We did that. We did that. The system that was in operation was: they would submit their application to the builder

[BLD06-ORG06], I think it was seven days before the builder [BLD06-ORG06] was to put his in, and at the same time they would copy it to ourselves. That gave us seven working days to check this and say: "Yes."

BLD06-ORG05-INT01: To what extent do you think this created a problem for the primary construction contractor [BLD06-ORG06]?

BLD06-ORG05-REP01: No, I don't think it created any problems. BLD06-ORG06 may have thought different. There were occasions where they [BLD06-ORG06] wanted, sort of, to be the middle man. Which is fair enough. They were the main contractor [primary construction contractor]. But, I mean, the very fact that prior to tenders being invited, the main contractors [primary construction contractors] on the tender list were actually brought in for interview by the architect [BLD06-ORG02] and quantity surveyor [BLD06-ORG03]. And this scenario was actually set out to them: "This is the way the job is going to work. If you're not happy with it, tell us now and you don't tender." And they all accepted it: BLD06-ORG06, ORGANIZATION 6I, and one or two others. So they knew from day one what the score was, and it went alright.

BLD06-ORG05-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?

BLD06-ORG05-REP01: Me, personally? Well, I was the partner responsible for the project in this office. The design? I carried out a certain part of the design myself, because we're a small organization and we all muck-in. But, obviously, overall, there were various design engineers who were actually carrying out the detailed design. There is not a lot more to say than that. I was the point of contact between the design team, client and ourselves. So I was project managing it from within the organization. Having said that, I mean, you know, there were occasions – by trade I am an electrical engineer [electrical engineering design consultant] – if there was detailed mechanical problems, there wasn't as it happened, but if there was any detailed mechanical queries . . . OK, although I was overall responsible, the client [BLD06-ORG01] or the builder [BLD06-ORG06] or the architect [BLD06-ORG02] went straight to my mechanical colleagues. I mean, there was no hard and fast rule that they had to come through me. But, I mean, the systems within the office are such where if you get a phone call, you record it on a project diary sheet. So I knew what was happening, although I wasn't always involved in it. I mean, you probably spoke to



BLD06-ORG02-REP01 at BLD06-ORG02 even though BLD06-ORG02-REP02 was the project architect. Now a lot of the dealings were between BLD06-ORG02-REP02 and my mechanical colleague, BLD06-ORG05-REP02. And BLD06-ORG02-REP01 undoubtedly found out the result of that, but he wasn't involved, probably, on a day-to-day basis. And similarly the QS [BLD06-ORG03]. I mean, BLD06-ORG03-REP01 wasn't the project QS, it would have been BLD06-ORG03-REP02.

BLD06-ORG05-INT01: Were there any unusual or unforeseen site difficulties which affected the building services engineering design?

BLD06-ORG05-REP01: No, it was very simple. I mean, the problems on the M & E design [building services engineering design] . . . I mean, the only real problems were the actual services to the building. Obviously, it was a fairly major extension, percentage wise, onto the existing building. The power supply to the building wasn't big enough. So as part of the job we had to upgrade the transformer, which involved a lot of work, particularly as the transformer – you're probably not aware of the rest of the site – the transformer was in the basement and it was an oil-filled one. And we had to get rid of that and put in a cast resin one, without BLD06-ORG01 closing down. It was a weekend job, and it was pretty horrendous, actually. I was in London that weekend, on one of these bloody long-weekends. I got back in the house at, I think, eight o'clock at night, and there was a message on my answer machine: "Get to the BLD06-ORG01 site, urgently." I was there until eleven o'clock that night. There was a hiccup. But it happened. The heating side of it? Obviously, the existing boiler plant was also in the basement of the existing building, and that was shot. So as part of another contract – not part of this contract, but a separate engineering contract – we constructed a new boiler house for them which BLD06-ORG02 were involved in, but they . . . on that one, they were employed by us. Oh sorry, they were employed by the client [BLD06-ORG01], but working under our direction. We were the lead consultant for this £4/500,000 mechanical job. I mean, all they had to do was put up a few bloody brick walls. But that was a separate project, and it was done in tandem with this out-block so that the whole thing was already set up when the South Block was ready for opening.

BLD06-ORG05-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did your organization possess?

BLD06-ORG05-REP01: A fair amount, I would say. We've worked with them on, as well as the BLD06-ORG01 work over the years, we worked with them on various different hospital jobs. We still continue to work with them on \*\*\*\*\* jobs. They are the quantity surveyor [construction cost consultant] on this job that we have the little hiccup with at the moment. So we've worked with them before.

BLD06-ORG05-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did you possess?

BLD06-ORG05-REP01: Yes, as I say, I have worked with them during this time.

BLD06-ORG05-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD06-ORG03-REP01] did you possess?

BLD06-ORG05-REP01: Yes, I've known BLD06-ORG03-REP01 for a lot of years.

BLD06-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did your organization possess?

BLD06-ORG05-REP01: None. Sorry, yes, we had. But I wouldn't say it was on a regular basis. We've done a couple of jobs with them before for a local development corporation when it was in existence. We did work on \*\*\*\*\*. That's two that I can recall. We've done bits and pieces before, but not a lot.

BLD06-ORG05-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did you possess?

BLD06-ORG05-REP01: Yes, I have worked with BLD06-ORG02 before.

BLD06-ORG05-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD06-ORG02-REP01] did you possess?

BLD06-ORG05-REP01: I had worked with BLD06-ORG02-REP01 on several projects beforehand, yes.

BLD06-ORG05-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did your organization possess?

- BLD06-ORG05-REP01: On BLD06-ORG01 work, yes. On other work . . . I am trying to think if there has been any, actually. There may not have been any other work with BLD06-ORG04.
- BLD06-ORG05-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did you possess?
- BLD06-ORG05-REP01: I have worked with BLD06-ORG04 on the previous BLD06-ORG01 projects.
- BLD06-ORG05-INT01: How much previous experience of working with the representative of the structural engineering design consultant [BLD06-ORG04-REP01] did you possess?
- BLD06-ORG05-REP01: None. The project leader was BLD06-ORG04-REP01. Again, it's just BLD06-ORG01 work. And again, with it being primarily refurbishment, they were only brought in for . . . if there were any special structural requirements, and it was generally minimal. So I think it is probably fair to say that I hadn't come into contact with BLD06-ORG04-REP01 before this project.
- BLD06-ORG05-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did your organization possess?
- BLD06-ORG05-REP01: Yes, we had worked with BLD06-ORG06 before, in the past, on several different projects.
- BLD06-ORG05-INT01: How much previous experience of working with the primary construction contractor [BLD06-ORG06] did you possess?
- BLD06-ORG05-REP01: Yes, I had also worked with BLD06-ORG06 during these projects.
- BLD06-ORG05-INT01: How much previous experience of working with the representative of the primary construction contractor [BLD06-ORG06-REP01] did you possess?
- BLD06-ORG05-REP01: Who did they claim to be their project manager? There were a lot of people involved in the job, obviously. Not the guys on the site. I mean, what they did do on this job was use their M & E co-ordinator, BLD06-ORG06-REP02. Now BLD06-ORG06-REP02 wasn't permanently on this job, obviously, because they couldn't justify him full-time. I mean, they would tell you what sort of hours he spent on the job. Probably more as the job progressed. So we had a lot of dealing with BLD06-ORG06-REP02 on

the job. Now, I've come into contract with BLD06-ORG06-REP02 in the past. I used to work with him – he's a design engineer [building services engineering design consultant]. So I've come across BLD06-ORG06-REP02 a lot in the past. But the management guys there, well, BLD06-ORG06-REP01, yeah . . . he's a project manager, but you never really saw him. He'd probably fly the flag at the odd site meeting. But, I mean, basically, I couldn't say that I've worked with him before.

BLD06-ORG05-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG05-REP01: It's a funny one for the client. You've probably spoken to others in the team. You're probably aware that the client is a particularly difficult one to work for. They demand the best. They are prepared to pay for it, in fairness, but they are a particularly awkward client. It probably comes as a bit of a shock for BLD06-ORG02-REP01, because it was his first job with them. Didn't come as a shock to me or the QS [BLD06-ORG03-REP01], because, obviously, we worked with him over the years and we knew what they were like. But, I mean, from a reputation point-of-view, I don't know. It's a difficult one that. I mean, basically, they wanted a good building and they've got one. So I think they are *very reputable* as an organization. You can't question that. They're a blue-chip company. The fact that they went along the tendering route that I was telling you about, from our suggestion, shows that. I mean, they could have saved money. They could have knocked money off that by saying: "Well, let the builder hawk it round." But they weren't prepared to do that. I mean, that thing alone, to me, makes them *very reputable*.

BLD06-ORG05-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG05-REP01: They are *very reputable* them, very good. They are a very good quantity surveyor [construction cost consultant]. No, I would say 4.

BLD06-ORG05-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG05-REP01: I think they've done tremendous. I think the job at the end of the day is excellent. They had a few high-flying ideas, which really . . . I know you're not naming names, was down to BLD06-ORG02-REP02. He's a young architect. He comes in with all of these fancy ideas about having the thing done with uplighting in the offices. Which is not on. But by the time we talked to him and got him on the right

track, they've ended up with a building which, I know you're not talking to the client, but if you spoke to him he would say he was delighted with it. It's a tremendous building, and I believe it received a Civic Award. So I think they did very well. I am trying to think of a reason to get them down from 5 to 4, you know. I am trying to think if there were any problems, you know. But there wasn't, it was a good job all round. So I shall give them a 5.

BLD06-ORG05-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG05-REP01: Well, I mean, the structural engineer [structural engineering design consultant] tends . . . it's not a discipline we really have too much contact with. You know, they do their bit and we do ours. I mean, obviously, there is an interface. I am probably not the greatest fan of structural engineers [structural engineering design consultants], but that's another story. I think they go over-board, and to be honest, I think BLD06-ORG04 did on this one in certain items. But, I mean, that's not unusual for structural engineering [structural engineering design]. I mean, I am not criticizing; I am just commenting. Again, you know, the building is there and it has worked. There weren't any problems on the structural side, as far as I am aware. There may well have been some that the architect [architectural design consultant] and structural engineer [structural engineering design consultant] sorted out at satellite meetings. I wasn't aware of any major problems, structurally. I would say 4. They done alright.

BLD06-ORG05-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG05-REP01: BLD06-ORG06? I think BLD06-ORG06 did well. It was a particularly awkward client, as I've already said. I mean, they were chopping and changing right 'til the end. I mean, they were taking walls down right up 'til the final whistle blew – they were still changing things. I mean, there are electricians in this weekend. They're making, sort of, one room into two. So they are still changing things. And BLD06-ORG06? I think they did alright. I mean, like I say, it was a particularly awkward client. I don't know whether they had a claim in at the end for losses and expenses. I couldn't tell you. I wasn't party to that. But, certainly, they were justified in having one, I would have thought, the way things were being changed so late on. Again, I would give them a 4. They did alright.

BLD06-ORG05-INT01: Using *Scale B*, how often did your organization provided information in terms of personal contracts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG05-REP01: Not the easiest of questions. To my client? I mean, you hit the nail-on-the-head when you said it differs at different stages of the project. Obviously, at the initial design stage, I would say, probably, *several times daily*. It peaked at that while you were trying to agree the principles and locations, etc. But then, you know, once the job got underway, it probably tailed off to, I don't know, *once weekly*. So, I don't know, if you wanted to average that, what would you say, *once daily*?

BLD06-ORG05-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG05-REP01: Oh, that's less, obviously. I mean, we would have given budget costs initially, and once the job was underway it was only, sort of, advising them on variation costs and interim valuations. I mean, you're probably talking about, overall on the job, maybe *several times monthly*, as an average.

BLD06-ORG05-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG05-REP01: That was probably more on the same scale as the client [BLD06-ORG01], i.e., 6.

BLD06-ORG05-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG05-REP01: Oh, not very often. Like I say, during the design stage it was probably more relevant, you know, when we were giving them weights of plant, etc., you know. I would say that, again, overall on the contract, you are probably way down to . . . probably 3.

BLD06-ORG05-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG05-REP01: Well, that was probably more than . . . I would say you are probably talking in terms of *several times weekly*. When you say BLD06-ORG06, that presumably takes in . . . we had this relationship where, obviously, we did have a link with the subcontractors [secondary construction contractors]. But, I mean, the system was such that if we gave them any information, it was always copied to BLD06-ORG06 and the architects [BLD06-ORG02]. So

everybody knew what we were doing. So, you know, I would say *several times weekly*.

BLD06-ORG05-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG05-REP01: I would say *rarely*. I wouldn't say, *never*, you know, we had differences. But the client [BLD06-ORG01] was the type who would listen and take advice. So I would say *rarely*.

BLD06-ORG05-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG05-REP01: Again, *rarely*.

BLD06-ORG05-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG05-REP01: Well, I mean, obviously, the point that I made before about the architect [BLD06-ORG02]. . . you know, the young architect had all of these high-flying ideas. So I wouldn't say they were conflict, really. They were just the subjects of discussion, which by the time we bottomed it, it was sorted out. It's *rarely*.

BLD06-ORG05-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG05-REP01: *Rarely*.

BLD06-ORG05-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG05-REP01: I can't recall any. But I would hesitate to say *never*, because, obviously, there would have been the odd one. So, *rarely*.

BLD06-ORG05-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG05-REP01: I think it would be along the same lines as the last questions. I would say *rarely*. I mean, we had disagreements, which I wouldn't call them as being disagreements, you know? They were just subjects to discuss, and they were discussed in an open manner and resolved. So I would say *rarely*.

BLD06-ORG05-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG05-REP01: *Rarely*, I mean, don't really . . . they were the quantity surveyors [construction cost consultant] on the job, but effectively, we were the QS [construction cost consultant] on the M & E [building services engineering design] side. So they just took our advice.

BLD06-ORG05-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG05-REP01: No disputes. As with every building project, to reach the final . . . the final constructed item, you have . . . I would rather call them discussions. OK, I wouldn't call them disputes. So I would say *rarely*.

BLD06-ORG05-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG05-REP01: *Rarely*. I mean *rarely*. That doesn't happen.

BLD06-ORG05-INT01: The primary construction contractor [BLD06-ORG06]?

BLD06-ORG05-REP01: Well, again, looking at the next one up, it's *quite often*. So it was more than the others, but not as much as *quite often*. So I would say, *rarely*.

BLD06-ORG05-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD06-ORG05-REP01: Well, I mean, obviously, it's mechanical and electrical building services. The full design, tendering, site supervision, advice on tenders, cost control. We've done work for clients where we've been the project managers, if it's been an engineering contract, particularly for this client. We also just put a security system in for him at ORGANIZATION 6D House – nearly £400,000 – which, obviously, was an engineering job where we were the project managers. We can offer them other services with the . . . in any respect, of reports on existing installations and recommendations. The introduction of the CDM regulations – that's had a major impact. Obviously, we act as designers under the CDM regulations on a regular basis. We've also acted as planning supervisor on projects. Really, anything to do with engineering services within the construction industry we can assist with.

BLD06-ORG05-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?



BLD06-ORG05-REP01: We don't specialize in any, as such. When we first started off we tended to do a lot of health authority work, and that probably moved more into the industrial side after that. Certainly during the '80s – the boom time – when industry was really booming, we did a hell of a lot of industrial work: inward investors, such as Japanese clients, and that sort of thing. This was probably to the detriment of the health authority work, as we let that slip a little bit. We've always done commercial work, leisure work and that sort of thing. We don't do domestic installations. I mean, the only domestic work that we've done was for a particular local government organization, and it was only because it was twenty or so different houses in the county. The quantity made it worthwhile. But we don't touch domestic. With the, sort of, demise of the industrial sector, you know, we tended to push more into the commercial side. And trying to get back into the healthy authority work is difficult at the moment, especially with all of these trusts. You just don't know where the hell you are. But to summarise, I don't think we specialize in anything. If you had to name one thing which was probably our forte over the past ten years or so, it's more towards the industrial side.

BLD06-ORG05-INT01: How many years has your organization been established?

BLD06-ORG05-REP01: We are in our 18th year. 19## was the official year – 1 September 19##.

## 25.5 INTERVIEW TRANSCRIPT BLD06-TRAN05

Organization Role: Primary Construction Contractor

Organization Code BLD06-ORG06

Respondent Role: Boundary Representative for BLD06-ORG06

Respondent Code: BLD06-ORG06-REP01

Interviewer Code: BLD06-ORG06-INT01

BLD06-ORG06-INT01: Who was the client organization?

BLD06-ORG06-REP01: BLD06-ORG01.

BLD06-ORG06-INT01: What type of organization was the client [BLD06-ORG01]?

BLD06-ORG06-REP01: An educated end-user.

BLD06-ORG06-INT01: How much previous experience of the building process did the client/end-user [BLD06-ORG01] possess?

BLD06-ORG06-REP01: They'd carried out . . . they had their own manager [BLD06-ORG01-REP01] who had building knowledge and obviously looked after maintenance. He then became quite dependent on his design team.

BLD06-ORG06-INT01: To what extent do you think this improved the overall procurement and construction of the building project?

BLD06-ORG06-REP01: No, there were difficulties in procuring this. The client [BLD06-ORG01], being an overseas client, carries out a lot of direct procurement and wanted to procure under his own form of contract. That was a major problem, and ultimately it got procured under the JCT form. But it took quite a bit of effort to get BLD06-ORG01 to accept that, rather than their own in-house conditions.

BLD06-ORG06-INT01: Once the client/end-user [BLD06-ORG01] accepted the JCT form of contract, did you encounter any difficulties in the contract administration as a consequence of their inexperience?

BLD06-ORG06-REP01: No. Once we'd established the ground rules there wasn't a particular problem. It basically related to payment.

- BLD06-ORG06-INT01: How much previous experience of working with the client/end-user [BLD06-ORG01] did your organization possess?
- BLD06-ORG06-REP01: We actually hadn't worked for BLD06-ORG01 before. But subsequent to this job, we actually did – perhaps about a half-a-dozen smaller jobs.
- BLD06-ORG06-INT01: How did your organization become involved with the client/end-user [BLD06-ORG01] during the building project?
- BLD06-ORG06-REP01: We were asked to attend an interview with BLD06-ORG03 and BLD06-ORG02, with the client/end-user [BLD06-ORG01] present.
- BLD06-ORG06-INT01: How would you describe the roles and responsibilities undertaken by your organization during the building project?
- BLD06-ORG06-REP01: We took the architect's [BLD06-ORG02], structural engineer's [BLD06-ORG04], and building services engineer's [BLD06-ORG05] designs and built to those drawings. We procured everything that was necessary to make the job meet the client's [BLD06-ORG01] requirements.
- BLD06-ORG06-INT01: How would you describe the roles and responsibilities undertaken by yourself during the building project?
- BLD06-ORG06-REP01: My personal roles? My personal role was to make sure that the site performed in terms of quality, time, and cost. Not necessarily in that order.
- BLD06-ORG06-INT01: How would you describe the building project?
- BLD06-ORG06-REP01: From a personal point-of-view, when I first attended the meeting with BLD06-ORG03, and there was a perspective on the board, I wanted to build it. It is a quality, good-looking building, and the client [BLD06-ORG01] is a good client – potentially a good client.
- BLD06-ORG06-INT01: How would you describe or categorize the building project?
- BLD06-ORG06-REP01: Are you aware it won an award? When I saw the building, I said to myself: "This job will win an award or something." It was that kind of building. It was a quality building. It stood out from any other building that we'd really been involved with until that time. It had a lot of

interesting features, and it was the environment that it was being built in. The whole lot just fitted together very well.

BLD06-ORG06-INT01: Were there any unusual or unforeseen site difficulties?

BLD06-ORG06-REP01: No, because we were made aware of them. The biggest problem that the architect [BLD06-ORG02] and the client [BLD06-ORG01] pointed out was the residents.

BLD06-ORG06-INT01: What type of residents? Domestic or commercial?

BLD06-ORG06-REP01: Primarily the local people that lived adjacent to the site. And there was a point-of-contact set up with the client [BLD06-ORG01] and those people. And that was a very important role. We obviously had to make sure that we didn't . . . that we weren't noisy. I mean, there were even times when we had to stop work because of Directors' meetings, and you could be given as little as half-an-hour's notice. So you had to be flexible. I mean, things like that had been pointed out at the briefing, and they were also in the tender documents, so we knew about them. They weren't easy to manage around, but you knew about them.

BLD06-ORG06-INT01: Would you therefore classify the building project as being a challenge as opposed to being difficult?

BLD06-ORG06-REP01: It was maintaining a good-neighbour policy.

BLD06-ORG06-INT01: What type of construction contract was used?

BLD06-ORG06-REP01: I believe it was standard JCT 80.

BLD06-ORG06-INT01: What tendering procedure was used?

BLD06-ORG06-REP01: It was a bill of quantities.

BLD06-ORG06-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did your organization possess?

BLD06-ORG06-REP01: Quite a lot.

BLD06-ORG06-INT01: How much previous experience of working with the construction cost consultant [BLD06-ORG03] did you possess?

BLD06-ORG06-REP01: Yes, quite a few times.

- BLD06-ORG06-INT01: How much previous experience of working with the representative of the construction cost consultant [BLD06-ORG03-REP01] did you possess?
- BLD06-ORG06-REP01: Yes, I had worked with him before – the partner, in particular.
- BLD06-ORG06-INT01: To what extent were any secondary construction contractors or suppliers responsible for the provision of a project-specific design element?
- BLD06-ORG06-REP01: I don't think so. I think the only design, if you want to call it design, may have been the hollow rib, and it may have been the joints on the structural steel connections. I believe everything else was fully designed.
- BLD06-ORG06-INT01: How much experience of working with the secondary construction contractors or suppliers did your organization possess?
- BLD06-ORG06-REP01: We'd worked with most of them. Some were new. Some were new to us.
- BLD06-ORG06-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did your organization possess?
- BLD06-ORG06-REP01: We have worked with the architect [BLD06-ORG02] on two occasions: one as a traditional architect [architectural design consultant] and one as a member of a design team – as on design and build – they were novated.
- BLD06-ORG06-INT01: Did you gain this experience before the BLD06-ORG01 building project?
- BLD06-ORG06-REP01: Yes, it was.
- BLD06-ORG06-INT01: To what extent does the change in roles and responsibilities between your organization and the architectural design consultant [BLD06-ORG02] create any difficulties?
- BLD06-ORG06-REP01: No, they need motivating in both situations. No, we send them along the direction we want. However, they might not like it.
- BLD06-ORG06-INT01: How much previous experience of working with the architectural design consultant [BLD06-ORG02] did you possess?

BLD06-ORG06-REP01: One of the two previous projects?

BLD06-ORG06-INT01: How much previous experience of working with the representative of the architectural design consultant [BLD06-ORG02-REP01] did you possess?

BLD06-ORG06-REP01: BLD06-ORG02-REP01? I knew BLD06-ORG02-REP01 before, and I think he'd been partly involved with one of the jobs. But he wasn't the job architect.

BLD06-ORG06-INT01: How much previous experience of working with the structural engineering design consultant [BLD06-ORG04] did your organization possess?

BLD06-ORG06-REP01: I am not aware of having worked with BLD06-ORG04 in this region before. But about the time that this was being built, we actually were working with BLD06-ORG04 on another job.

BLD06-ORG06-INT01: How much previous experience of working with the building services engineering design consultant [BLD06-ORG05] did your organization possess?

BLD06-ORG06-REP01: I can't recall any. I don't think we have.

BLD06-ORG06-INT01: Using *Scale A*, how would you rank the reputation of each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG06-REP01: Your views of reputation could change during the job. Certainly now, two or three years later, you'd have a totally different view. The client [BLD06-ORG01] is 4.

BLD06-ORG06-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG06-REP01: 4.

BLD06-ORG06-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG06-REP01: 4.

BLD06-ORG06-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG06-REP01: This is a difficult one, because BLD06-ORG04's reputation is in heavy structures, and this is a building. In the context of a building? He was a strange choice, but they've got a good reputation. I think it has to be 3. They were the wrong engineer [structural engineering design consultant].

BLD06-ORG06-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG06-REP01: 3.

BLD06-ORG06-INT01: Using *Scale B*, how often did your organization provide information in terms of personal contacts at meetings, telephone conversations, facsimile transmissions, reports, letters, drawings, etc., to each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG06-REP01: The client [BLD06-ORG01]? Well, we met with the client [BLD06-ORG01] every day. So it would be 6.

BLD06-ORG06-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG06-REP01: Probably 2.

BLD06-ORG06-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG06-REP01: 7.

BLD06-ORG06-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG06-REP01: During the time of their involvement, 5.

BLD06-ORG06-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG06-REP01: 5.

BLD06-ORG06-INT01: Using *Scale C*, rate the extent to which conflicting responsibilities or priorities characterized your relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG06-REP01: I don't think there was a conflict. I suppose you might have to put a 2 in there.

BLD06-ORG06-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG06-REP01: I think this is probably 2, again.

BLD06-ORG06-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG06-REP01: I think that needs to be defined a bit more, because I don't actually see it as a conflict. I think what we are going to

end up is that all of these are going to be 2s. I can't see any other way.

BLD06-ORG06-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG06-REP01: 2.

BLD06-ORG06-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG06-REP01: 2.

BLD06-ORG06-INT01: Using *Scale C*, rate the extent to which disagreements or disputes characterized both your individual and your organization's relationship with each of the following organizations? First of all, the client/end-user [BLD06-ORG01]?

BLD06-ORG06-REP01: 1.

BLD06-ORG06-INT01: The construction cost consultant [BLD06-ORG03]?

BLD06-ORG06-REP01: 2.

BLD06-ORG06-INT01: The architectural design consultant [BLD06-ORG02]?

BLD06-ORG06-REP01: 2.

BLD06-ORG06-INT01: The structural engineering design consultant [BLD06-ORG04]?

BLD06-ORG06-REP01: 2.

BLD06-ORG06-INT01: The building services engineering design consultant [BLD06-ORG05]?

BLD06-ORG06-REP01: That's a 2 as well.

BLD06-ORG06-INT01: What is the full range of professional services that your organization could provide to a potential client?

BLD06-ORG06-REP01: If the client wants a job built, then we could find the site, design it, fund it, build it, commission it, and if he wanted it maintained, then we could maintain it. So we can provide the whole range of services.

BLD06-ORG06-INT01: What is the full range of industrial sectors to which your organization could provide a professional service to a potential client?



BLD06-ORG06-REP01: It is probably easier to tell you what we don't do. We don't do housing. We don't do an awful lot of local authority work. We don't do an awful lot of private-developer work, unless we know them. But anything else . . . anything else, building or civils, we'll have a go at. The whole range!

BLD06-ORG06-INT01: How many years has your organization been established?

BLD06-ORG06-REP01: one-hundred-and-twenty-six years.

## **26 APPENDIX Q: SEM MODIFICATION PROCEDURE**

The modification procedure for the hypothesized structural equation model that is illustrated in Figure 7.1 on page 219 is outlined in this section. As explained in Section 7.3 Results of Structural Equation Modelling Analysis, which starts on page 216, there are a number of reasons for modifying the structural model. However, the most important reason is the need to improve its overall fit, especially in exploratory work such as this Ph.D. investigation.

### **26.1.1 EQS SEM Test 2A**

The hypothesized structural model for EQS Test 2A included eight independent and three dependent factors. Following the iterative process, EQS reported that it was unable to achieve convergence after thirty cycles. However, EQS did report that the parameter estimates appeared to be in order and that no special problems were encountered during optimization. The final parameter estimates from the analysis for EQS Test 2A were used to modify the simplified structural model. The results of this modification are explained in the run for EQS Test 2B.

### **26.1.2 EQS SEM Test 2B**

The modified structural model for EQS Test 2B included eight independent and three dependent factors. Following the iterative process, EQS reported that it was able to achieve convergence after twenty-two cycles. EQS also reported that the parameter estimates appeared to be in order and that no special problems were encountered during optimization. The final parameter estimates from the analysis for Test 2B were used to modify the structural model. The results of this modification are explained in the run for EQS Test 2C.

### **26.1.3 EQS SEM Test 2C**

The modified structural model for EQS Test 2C included eight independent and three dependent factors. Following the iterative process, EQS reported that it was able to

achieve convergence after five cycles. EQS also reported that the parameter estimates appeared to be in order and that no special problems were encountered during optimization. It was therefore decided to examine the results of the Wald test and the Lagrangian Multiplier test. Three parameters were identified from the Wald Test results list to be dropped. These were selected on the basis of the first three (approximately 10% of population) logical parameters. A similar method was adopted for the addition of parameters as identified by the Lagrangian Multiplier test results. The results of this modification are explained in the run for EQS Test 2D.

#### **26.1.4 EQS SEM Test 2D**

The modified structural model for EQS Test 2D included the eight independent and three dependent factors and the three dropped and three added parameters. Following the iterative process, EQS reported that it was able to achieve convergence after four cycles. EQS also reported that the parameter estimates appeared to be in order and that no special problems were encountered during optimization. It was therefore decided to examine the results of the Wald test and the Lagrangian Multiplier test. Three parameters were identified from the Wald test results list to be dropped. These were selected on the basis of the first three (approximately 10% of population) logical parameters. A similar method was adopted for the addition of parameters as identified by the Lagrangian Multiplier test results. The results of this modification are explained in the run for EQS Test 2E.

#### **26.1.5 EQS SEM Test 2E**

The modified structural model for EQS Test 2E included the eight independent and three dependent factors and the six dropped and six added parameters. Following the iterative process, EQS reported that it was able to achieve convergence after five cycles. EQS also reported that the parameter estimates appeared to be in order and that no special problems were encountered during optimization. It was therefore decided to examine the results of the Wald test and the Lagrangian Multiplier test. Two parameters were identified from the Wald test results list to be dropped. These were selected on the basis of the first two (approximately 7% of population) logical

parameters. A similar method was adopted for the addition of parameters as identified by the Lagrangian Multiplier test results. The results of this modification are explained in the run for EQS Test 2F.

#### **26.1.6 EQS SEM Test 2F**

The modified structural equation model for EQS Test 2F included the eight independent and three dependent factors and the eight dropped and eight added parameters. Following the iterative process, EQS reported that it was able to achieve convergence after five cycles. EQS also reported that the parameter estimates appeared to be in order and that no special problems were encountered during optimization. It was therefore decided to examine the results of the Wald test and the Lagrangian Multiplier test. One parameter was identified from the Wald test results list to be dropped. This was selected on the basis of the first (approximately 4% of population) logical parameter. A similar method was adopted for the addition of parameters as identified by the Lagrangian Multiplier test results. The results of this modification are explained in the run for EQS Test 2G.

#### **26.1.7 EQS SEM Test 2G**

The modified structural equation model for EQS Test 2G included the eight independent and three dependent factors and the nine dropped and nine added parameters. Following the iterative process, EQS reported that it was able to achieve convergence after five cycles. EQS also reported that the parameter estimates appeared to be in order and that no special problems were encountered during optimization. It was therefore decided to examine the results of the Wald test and the Lagrangian Multiplier test. No parameters were identified from the Wald test results list to be dropped or the Lagrangian Multiplier test results. However, the final parameter estimates from the analysis for EQS Test 2G were used to modify the structural model. The results of this modification are explained in the run for EQS Test 2H.

**26.1.8 EQS SEM Test 2H**

The modified structural model for EQS Test 2H included the eight independent and three dependent factors and the nine dropped and nine added parameters. Following the iterative process, EQS reported that it was able to achieve convergence after one cycle. EQS also reported that the parameter estimates appeared to be in order and that no special problems were encountered during optimization.

Figure 27.1 Final EQS SEM Output File Printout (Page 1)

```

1
EQS, A STRUCTURAL EQUATION PROGRAM          MULTIVARIATE SOFTWARE, INC.
COPYRIGHT BY P.M. BENTLER                     VERSION 5.7b (C) 1985 - 1998.

PROGRAM CONTROL INFORMATION

1 /TITLE
2 TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT
3 /SPECIFICATIONS
4 DATA='A:\TEST2H.ESS';
5 VARIABLES= 11; CASES= 40;
6 METHODS=ML;
7 MATRIX=RAW;
8 /LABELS
9 V1=C REPU; V2=P SERV; V3=O SECT; V4=P POWE; V5=R MATU;
10 V6=R FAMI; V7=O REPU; V8=P STAT; V9=INTER; V10=S CONF;
11 V11=O CONF;
12 /EQUATIONS
13 V9 = 1.453*V1 + .081*V2 + 1.299*V3 + .106*V5 + -3.667*V8 +
14      1.000 E9 ;
15 V10 = .117*V9 + .180*V2 + .553*V4 + .185*V5 + -.298*V6 +
16      1.000 E10 ;
17 V11 = .388*V10 + .483*V1 + .027*V2 + .163*V3 + .538*V4 +
18      .124*V5 + -.717*V7 + -.735*V8 + 1.000 E11 ;
19 /VARIANCES
20 V1 = 1.118*;
21 V2 = 4.392*;
22 V3 = 1.932*;
23 V4 = .356*;
24 V5 = 6.782*;
25 V6 = 4.408*;
26 V7 = 1.272*;
27 V8 = .457*;
28 E9 = 4.336*;
29 E10 = .921*;
30 E11 = .512*;
31 /COVARIANCES
32 V3 , V2 = 1.167*;
33 V5 , V2 = -1.128*;
34 V7 , V5 = -.814*;
35 V7 , V6 = .527*;
36 V8 , V1 = .378*;
37 V8 , V3 = .561*;
38 V8 , V5 = -.126*;
39 V8 , V6 = .146*;
40 V8 , V7 = -.076*;
41 /LMTEST
42 /WTEST
43 /PRINT
44 covariance=yes; correlation=yes;
45 digit=3;
46 linesize =80;
47 RETEST='A:\test2hr.eqs';
48 /OUTPUT
49 parameters;
50 standard errors;
51 listing;
52 data='EQSOUT&.ETS';

```

**Figure 27.2 Final EQS SEM Output File Printout (Page 2)**

```
TITLE:  TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT
EQS/EM386 Licensee: Allan Osborne
53 /END
```

```
53 RECORDS OF INPUT MODEL FILE WERE READ
```

```
DATA IS READ FROM A:\TEST2H.ESS
THERE ARE 11 VARIABLES AND 40 CASES
IT IS A RAW DATA ESS FILE
```

**Figure 27.3 Final EQS SEM Output File Printout (Page 3)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
EQS/EM386 Licensee: Allan Osborne

SAMPLE STATISTICS BASED ON COMPLETE CASES

UNIVARIATE STATISTICS

VARIABLE	CREPU	PSERV	OSECT	PPWE	RMATU
MEAN	8.6000	2.7250	6.5250	2.9500	3.6898
SKEWNESS (G1)	-0.4640	0.6357	-0.8732	0.0110	0.6186
KURTOSIS (G2)	-0.5312	-0.2236	-0.6293	-0.1411	-0.4703
STANDARD DEV.	1.0573	2.1362	1.4320	0.5970	2.6078

VARIABLE	RFAMI	OREPU	PSTAT	INTER	SCONF
MEAN	3.5500	8.2500	8.6875	8.9000	4.2250
SKEWNESS (G1)	-0.2814	-0.8086	-0.1582	-0.1317	0.7455
KURTOSIS (G2)	-1.1252	0.5861	-0.5135	-0.4883	0.2515
STANDARD DEV.	2.0995	1.1491	0.6625	2.6583	1.4409

VARIABLE	OCONF
MEAN	3.7750
SKEWNESS (G1)	0.9523
KURTOSIS (G2)	0.4311
STANDARD DEV.	1.5931

MULTIVARIATE KURTOSIS

MARDIA'S COEFFICIENT (G2,P) = -6.2518  
NORMALIZED ESTIMATE = -1.1690

ELLIPTICAL THEORY KURTOSIS ESTIMATES

MARDIA-BASED KAPPA = -0.0437 MEAN SCALED UNIVARIATE KURTOSIS = -0.0865  
MARDIA-BASED KAPPA IS USED IN COMPUTATION. KAPPA= -0.0437

CASE NUMBERS WITH LARGEST CONTRIBUTION TO NORMALIZED MULTIVARIATE KURTOSIS:

CASE NUMBER	14	15	26	27	37
ESTIMATE	50.5252	30.9072	52.2030	35.7053	32.8820



Figure 27.4 Final EQS SEM Output File Printout (Page 4)

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 COVARIANCE MATRIX TO BE ANALYZED: 11 VARIABLES (SELECTED FROM 11 VARIABLES)  
 BASED ON 40 CASES.

		CREPU V 1	PSERV V 2	OSECT V 3	PPOWE V 4	RMATU V 5
CREPU	V 1	1.118				
PSERV	V 2	-0.087	4.563			
OSECT	V 3	-0.092	1.533	2.051		
PPOWE	V 4	-0.072	-0.142	-0.306	0.356	
RMATU	V 5	0.177	-1.687	-0.935	-0.186	6.800
RFAMI	V 6	-0.159	-0.153	0.114	0.131	-1.540
OREPU	V 7	0.103	-0.006	0.122	0.115	-0.982
PSTAT	V 8	0.327	0.148	0.584	-0.115	-0.406
INTER	V 9	0.318	1.510	0.413	-0.082	1.117
SCONF	V 10	0.323	0.653	-0.070	0.088	1.440
OCNF	V 11	0.318	0.193	-0.494	0.117	2.195

		RFAMI V 6	OREPU V 7	PSTAT V 8	INTER V 9	SCONF V 10
RFAMI	V 6	4.408				
OREPU	V 7	0.731	1.321			
PSTAT	V 8	0.206	0.016	0.439		
INTER	V 9	-1.610	0.231	-0.407	7.067	
SCONF	V 10	-1.742	-0.442	-0.140	1.741	2.076
OCNF	V 11	-1.463	-1.122	-0.244	1.003	1.616

		OCNF V 11
OCNF	V 11	2.538

## BENTLER-WEEKS STRUCTURAL REPRESENTATION:

NUMBER OF DEPENDENT VARIABLES = 3  
 DEPENDENT V'S : 9 10 11

NUMBER OF INDEPENDENT VARIABLES = 11  
 INDEPENDENT V'S : 1 2 3 4 5 6 7 8  
 INDEPENDENT E'S : 9 10 11

NUMBER OF FREE PARAMETERS = 38  
 NUMBER OF FIXED NONZERO PARAMETERS = 3

3RD STAGE OF COMPUTATION REQUIRED 5069 WORDS OF MEMORY.  
 PROGRAM ALLOCATED 100000 WORDS

DETERMINANT OF INPUT MATRIX IS 0.10832E+02

**Figure 27.5 Final EQS SEM Output File Printout (Page 5)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

FOLLOWING TECHNICAL INFORMATION HAS BEEN STORED IN EQSOUT&.ETS

PARAMETERS TO BE PRINTED ARE:

V1,V1	V2,V2	V3,V2	V3,V3	V4,V4	V5,V2	V5,V5	V6,V6
V7,V5	V7,V6	V7,V7	V8,V1	V8,V3	V8,V5	V8,V6	V8,V7
V8,V8	E9,E9	E10,E10	E11,E11	V9,V1	V9,V2	V9,V3	V9,V5
V9,V8	V10,V2	V10,V4	V10,V5	V10,V6	V11,V1	V11,V2	V11,V3
V11,V4	V11,V5	V11,V7	V11,V8	V10,V9	V11,V10		

NOTE: SAMPLE COVARIANCE MATRIX AND RESIDUAL MATRIX IN THIS  
 TECHNICAL OUTPUT HAVE BEEN ARRANGED IN THE SEQUENCE  
 OF ALL DEPENDENT VARIABLES FOLLOWED BY ALL INDEPENDENT  
 VARIABLES

19 ELEMENTS OF MODEL STATISTICS, THEY ARE:

ESTIMATION METHOD (LS, GLS, ML, ELS, EGLS, ERLS, AGLS)  
 CONDITION CODE (0 FOR NORMAL CONDITION)  
 CONVERGENCE (0 FOR MODEL CONVERGED)  
 NULL MODEL CHI-SQUARE  
 MODEL CHI-SQUARE  
 DEGREES OF FREEDOM  
 PROBABILITY LEVEL  
 BENTLER-BONETT NORMED FIT INDEX  
 BENTLER-BONETT NON-NORMED FIT INDEX  
 COMPARATIVE FIT INDEX  
 LISREL GFI  
 LISREL AGFI  
 ROOT MEAN-SQUARE RESIDUAL  
 STANDARDIZED ROOT MEAN-SQUARE RESIDUAL  
 ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA)  
 CONFIDENCE INTERVAL FOR RMSEA (LOWER BOUND)  
 CONFIDENCE INTERVAL FOR RMSEA (UPPER BOUND)  
 NUMBER OF ITERATIONS FOR CONVERGENCE  
 NUMBER OF FIXED MEASURED VARIABLES

38 ELEMENTS OF PARAMETER ESTIMATES

38 ELEMENTS OF STANDARD ERRORS

1 LINES OF INFORMATION FOR DEPENDENT VARIABLES

2 LINES OF INFORMATION FOR INDEPENDENT VARIABLES

OUTPUT FORMAT FOR INFORMATION SECTION IS: (8E16.8)

TOTAL NUMBER OF LINES PER SET OF INFORMATION IS: 14

MATRIX GFI-ML MAY NOT BE POSITIVE DEFINITE.

**Figure 27.6 Final EQS SEM Output File Printout (Page 6)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

PARAMETER ESTIMATES APPEAR IN ORDER,  
 NO SPECIAL PROBLEMS WERE ENCOUNTERED DURING OPTIMIZATION.

RESIDUAL COVARIANCE MATRIX (S-SIGMA) :

		CREPU V 1	PSERV V 2	OSECT V 3	PPOWE V 4	RMATU V 5
CREPU	V 1	0.000				
PSERV	V 2	-0.087	0.171			
OSECT	V 3	-0.092	0.368	0.120		
PPOWE	V 4	-0.072	-0.142	-0.306	0.000	
RMATU	V 5	0.177	-0.558	-0.935	-0.186	0.017
RFAMI	V 6	-0.159	-0.153	0.114	0.131	-1.540
OREPU	V 7	0.103	-0.006	0.122	0.115	-0.168
PSTAT	V 8	-0.051	0.148	0.022	-0.115	-0.277
INTER	V 9	0.079	-0.236	-0.128	-0.082	0.016
SCONF	V 10	0.295	-0.133	-0.343	-0.109	0.261
OCONF	V 11	0.044	-0.279	-0.532	-0.152	0.245

		RFAMI V 6	OREPU V 7	PSTAT V 8	INTER V 9	SCONF V 10
RFAMI	V 6	0.000				
OREPU	V 7	0.203	0.049			
PSTAT	V 8	0.057	0.091	-0.019		
INTER	V 9	-1.064	0.042	0.006	-0.093	
SCONF	V 10	-0.364	-0.157	-0.024	0.221	0.099
OCONF	V 11	-0.439	-0.052	-0.174	-0.144	0.225

		OCONF V 11
OCONF	V 11	0.129

AVERAGE ABSOLUTE COVARIANCE	RESIDUALS	=	0.1976
AVERAGE OFF-DIAGONAL ABSOLUTE COVARIANCE	RESIDUALS	=	0.2245

STANDARDIZED RESIDUAL MATRIX:

		CREPU V 1	PSERV V 2	OSECT V 3	PPOWE V 4	RMATU V 5
CREPU	V 1	0.000				
PSERV	V 2	-0.039	0.038			
OSECT	V 3	-0.061	0.120	0.059		
PPOWE	V 4	-0.114	-0.112	-0.358	0.000	
RMATU	V 5	0.064	-0.100	-0.250	-0.119	0.003
RFAMI	V 6	-0.072	-0.034	0.038	0.104	-0.281
OREPU	V 7	0.084	-0.003	0.074	0.168	-0.056
PSTAT	V 8	-0.073	0.105	0.023	-0.292	-0.161
INTER	V 9	0.028	-0.042	-0.034	-0.052	0.002
SCONF	V 10	0.194	-0.043	-0.166	-0.126	0.069
OCONF	V 11	0.026	-0.082	-0.233	-0.159	0.059

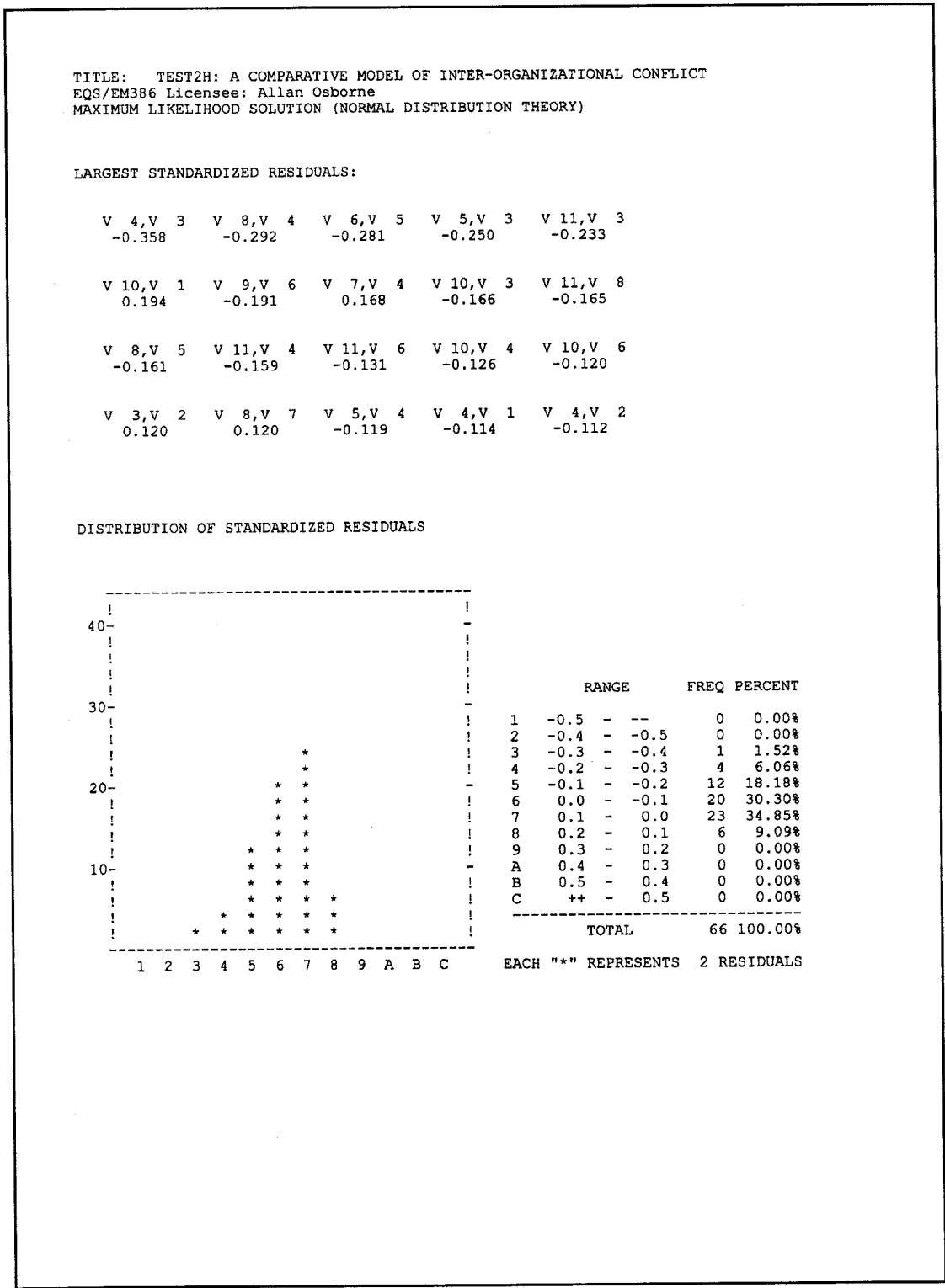
  

		RFAMI V 6	OREPU V 7	PSTAT V 8	INTER V 9	SCONF V 10
RFAMI	V 6	0.000				
OREPU	V 7	0.084	0.037			
PSTAT	V 8	0.041	0.120	-0.043		
INTER	V 9	-0.191	0.014	0.004	-0.013	

**Figure 27.7** Final EQS SEM Output File Printout (Page 7)

SCONF	V 10	-0.120	-0.095	-0.025	0.058	0.048
OCONF	V 11	-0.131	-0.028	-0.165	-0.034	0.098
		OCONF				
		V 11				
OCONF	V 11	0.051				
AVERAGE ABSOLUTE STANDARDIZED RESIDUALS						- 0.0866
AVERAGE OFF-DIAGONAL ABSOLUTE STANDARDIZED RESIDUALS						- 0.0987

Figure 27.8 Final EQS SEM Output File Printout (Page 8)



**Figure 27.9 Final EQS SEM Output File Printout (Page 9)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

MODEL COVARIANCE MATRIX FOR MEASURED AND LATENT VARIABLES

		CREPU V 1	PSESV V 2	OSECT V 3	PPOWE V 4	RMATU V 5
CREPU	V 1	1.118				
PSESV	V 2	0.000	4.392			
OSECT	V 3	0.000	1.165	1.930		
PPOWE	V 4	0.000	0.000	0.000	0.356	
RMATU	V 5	0.000	-1.130	0.000	0.000	6.783
RFAMI	V 6	0.000	0.000	0.000	0.000	0.000
OREPU	V 7	0.000	0.000	0.000	0.000	-0.814
PSTAT	V 8	0.378	0.000	0.562	0.000	-0.129
INTER	V 9	0.239	1.747	0.541	0.000	1.101
SCONF	V 10	0.028	0.786	0.273	0.197	1.179
OCONF	V 11	0.274	0.472	0.038	0.268	1.950

		RFAMI V 6	OREPU V 7	PSTAT V 8	INTER V 9	SCONF V 10
RFAMI	V 6	4.408				
OREPU	V 7	0.527	1.272			
PSTAT	V 8	0.149	-0.075	0.458		
INTER	V 9	-0.547	0.189	-0.414	7.159	
SCONF	V 10	-1.378	-0.285	-0.117	1.520	1.978
OCONF	V 11	-1.024	-1.070	-0.070	1.147	1.391

		OCONF V 11
OCONF	V 11	2.409

**Figure 27.10 Final EQS SEM Output File Printout (Page 10)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

MODEL CORRELATION MATRIX FOR MEASURED AND LATENT VARIABLES

		CREPU V 1	PSESV V 2	OSECT V 3	PPOWE V 4	RMATU V 5
CREPU	V 1	1.000				
PSESV	V 2	0.000	1.000			
OSECT	V 3	0.000	0.400	1.000		
PPOWE	V 4	0.000	0.000	0.000	1.000	
RMATU	V 5	0.000	-0.207	0.000	0.000	1.000
RFAMI	V 6	0.000	0.000	0.000	0.000	0.000
OREPU	V 7	0.000	0.000	0.000	0.000	-0.277
PSTAT	V 8	0.528	0.000	0.598	0.000	-0.073
INTER	V 9	0.085	0.311	0.145	0.000	0.158
SCONF	V 10	0.019	0.267	0.140	0.235	0.322
OCONF	V 11	0.167	0.145	0.018	0.289	0.482

		RFAMI V 6	OREPU V 7	PSTAT V 8	INTER V 9	SCONF V 10
RFAMI	V 6	1.000				
OREPU	V 7	0.223	1.000			
PSTAT	V 8	0.105	-0.098	1.000		
INTER	V 9	-0.097	0.062	-0.228	1.000	
SCONF	V 10	-0.467	-0.180	-0.123	0.404	1.000
OCONF	V 11	-0.314	-0.611	-0.067	0.276	0.637

		OCONF V 11
OCONF	V 11	1.000

**Figure 27.11 Final EQS SEM Output File Printout (Page 11)**

```

TITLE:  TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT
EQS/EM386 Licensee: Allan Osborne
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

GOODNESS OF FIT SUMMARY

INDEPENDENCE MODEL CHI-SQUARE =          210.823 ON    55 DEGREES OF FREEDOM

INDEPENDENCE AIC =    100.82301    INDEPENDENCE CAIC =    -47.06536
MODEL AIC =    -32.61958    MODEL CAIC =    -107.90821

CHI-SQUARE =          23.380 BASED ON    28 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS    0.71378
THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS    20.542.

BENTLER-BONETT NORMED    FIT INDEX=          0.889
BENTLER-BONETT NONNORMED FIT INDEX=          1.058
COMPARATIVE FIT INDEX (CFI)    =          1.000

ITERATIVE SUMMARY

ITERATION    PARAMETER    ALPHA    FUNCTION
1            ABS CHANGE    1.00000    0.59950
0.000624

```



**Figure 27.12 Final EQS SEM Output File Printout (Page 12)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

MEASUREMENT EQUATIONS WITH STANDARD ERRORS AND TEST STATISTICS

INTER =V9 = 1.454\*V1 + .081\*V2 +1.299\*V3 + .106\*V5 -3.667\*V8  
 .447 .203 .422 .136 .936  
 3.255 .398 3.076 .782 -3.920  
 +1.000 E9

SCONF =V10 = .117\*V9 + .180\*V2 + .553\*V4 + .185\*V5 - .298\*V6  
 .063 .080 .257 .062 .074  
 1.873 2.242 2.148 2.974 -4.050  
 +1.000 E10

OCONF =V11 = .389\*V10 + .484\*V1 + .027\*V2 + .163\*V3 + .538\*V4  
 .100 .160 .072 .153 .200  
 3.902 3.021 .370 1.065 2.693  
 + .124\*V5 - .718\*V7 - .735\*V8 +1.000 E11  
 .052 .111 .346  
 2.386 -6.436 -2.122

**Figure 27.13 Final EQS SEM Output File Printout (Page 13)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

VARIANCES OF INDEPENDENT VARIABLES

	V	F
	---	---
V1 -CREPU	1.118*I .253 I 4.416 I	I I I
V2 -PSERV	I 4.392*I .987 I 4.451 I	I I I I
V3 -OSECT	I 1.930*I .398 I 4.853 I	I I I I
V4 -PPOWE	I .356*I .081 I 4.416 I	I I I I
V5 -RMATU	I 6.783*I 1.529 I 4.438 I	I I I I
V6 -RFAMI	I 4.408*I .998 I 4.416 I	I I I I
V7 -OREPU	I 1.272*I .287 I 4.434 I	I I I I
V8 -PSTAT	I .458*I .087 I 5.288 I	I I I I

**Figure 27.14 Final EQS SEM Output File Printout (Page 14)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

VARIANCES OF INDEPENDENT VARIABLES  
 -----

	E		D	
	---		---	
E9 -INTER	4.336*I			I
	.982 I			I
	4.416 I			I
	I			I
E10 -SCONF	.921*I			I
	.208 I			I
	4.416 I			I
	I			I
E11 -OCONF	.512*I			I
	.116 I			I
	4.416 I			I
	I			I

**Figure 27.15 Final EQS SEM Output File Printout (Page 15)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

COVARIANCES AMONG INDEPENDENT VARIABLES  
 -----

	V		F	
	---		---	
V8 -PSTAT		.378*I		I
V1 -CREPU		.102 I		I
		3.700 I		I
		I		I
V3 -OSECT		1.165*I		I
V2 -PSERV		.373 I		I
		3.120 I		I
		I		I
V5 -RMATU		-1.130*I		I
V2 -PSERV		.788 I		I
		-1.434 I		I
		I		I
V8 -PSTAT		.562*I		I
V3 -OSECT		.146 I		I
		3.853 I		I
		I		I
V7 -OREPU		-.814*I		I
V5 -RMATU		.465 I		I
		-1.749 I		I
		I		I
V8 -PSTAT		-.129*I		I
V5 -RMATU		.166 I		I
		-.777 I		I
		I		I
V7 -OREPU		.527*I		I
V6 -RFAMI		.373 I		I
		1.413 I		I
		I		I
V8 -PSTAT		.149*I		I
V6 -RFAMI		.122 I		I
		1.220 I		I
		I		I
V8 -PSTAT		-.075*I		I
V7 -OREPU		.067 I		I
		-1.117 I		I
		I		I

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT										
EQS/EM386 Licensee: Allan Osborne										
MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)										
STANDARDIZED SOLUTION:								R-SQUARED		
INTER	=V9	=	.574*V1	+	.063*V2	+	.674*V3	+	.103*V5	
		-	.927*V8	+	.778 E9					.394
SCONF	=V10	=	.223*V9	+	.268*V2	+	.235*V4	+	.342*V5	
		-	.445*V6	+	.682 E10					.534
OCONF	=V11	=	.352*V10	+	.329*V1	+	.036*V2	+	.146*V3	
		+	.207*V4	+	.209*V5	-	.521*V7	-	.321*V8	
		+	.461 E11							.788

**Figure 27.17 Final EQS SEM Output File Printout (Page 17)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

-----  
 CORRELATIONS AMONG INDEPENDENT VARIABLES  
 -----

	V		F	
	---		---	
V8 -PSTAT		.528*I		I
V1 -CREPU		I		I
		I		I
V3 -OSECT		.400*I		I
V2 -PSERV		I		I
		I		I
V5 -RMATU		-.207*I		I
V2 -PSERV		I		I
		I		I
V8 -PSTAT		.598*I		I
V3 -OSECT		I		I
		I		I
V7 -OREPU		-.277*I		I
V5 -RMATU		I		I
		I		I
V8 -PSTAT		-.073*I		I
V5 -RMATU		I		I
		I		I
V7 -OREPU		.223*I		I
V6 -RFAMI		I		I
		I		I
V8 -PSTAT		.105*I		I
V6 -RFAMI		I		I
		I		I
V8 -PSTAT		-.098*I		I
V7 -OREPU		I		I
		I		I

-----  
 E N D O F M E T H O D  
 -----

**Figure 27.18 Final EQS SEM Output File Printout (Page 18)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

WALD TEST (FOR DROPPING PARAMETERS)  
 MULTIVARIATE WALD TEST BY SIMULTANEOUS PROCESS

CUMULATIVE MULTIVARIATE STATISTICS					UNIVARIATE INCREMENT	
STEP	PARAMETER	CHI-SQUARE	D.F.	PROBABILITY	CHI-SQUARE	PROBABILITY
1	V11,V2	0.137	1	0.711	0.137	0.711
2	V9,V2	0.295	2	0.863	0.158	0.691
3	V9,V5	0.775	3	0.855	0.480	0.489
4	V8,V5	1.378	4	0.848	0.603	0.437
5	V8,V6	2.867	5	0.720	1.489	0.222
6	V8,V7	5.157	6	0.524	2.290	0.130
7	V11,V3	7.462	7	0.382	2.305	0.129
8	V10,V9	10.972	8	0.203	3.510	0.061

**Figure 27.19 Final EQS SEM Output File Printout (Page 19)**

TITLE: TEST2H: A COMPARATIVE MODEL OF INTER-ORGANIZATIONAL CONFLICT  
 EQS/EM386 Licensee: Allan Osborne  
 MAXIMUM LIKELIHOOD SOLUTION (NORMAL DISTRIBUTION THEORY)

LAGRANGIAN MULTIPLIER TEST REQUIRES 7643 WORDS OF MEMORY.  
 PROGRAM ALLOCATES 100000 WORDS.

LAGRANGE MULTIPLIER TEST (FOR ADDING PARAMETERS)

ORDERED UNIVARIATE TEST STATISTICS:

NO	CODE	PARAMETER	CHI-SQUARE	PROBABILITY	PARAMETER CHANGE
1	2 1	V6,V5	3.553	0.059	-1.608
2	2 11	V10,V1	2.605	0.107	0.236
3	2 1	V5,V3	1.904	0.168	-0.750
4	2 1	V4,V3	1.607	0.205	-0.091
5	2 11	V9,V6	0.754	0.385	-0.141
6	2 11	V10,V7	0.697	0.404	-0.124
7	2 11	V10,V8	0.647	0.421	0.189
8	2 1	V7,V1	0.643	0.423	0.143
9	2 1	V6,V2	0.629	0.428	-0.482
10	2 1	V7,V4	0.533	0.466	0.069
11	2 1	V8,V2	0.435	0.509	0.122
12	2 1	V6,V1	0.386	0.534	-0.215
13	2 1	V5,V1	0.368	0.544	0.249
14	2 1	V6,V3	0.250	0.617	0.208
15	2 1	V4,V1	0.230	0.632	-0.033
16	2 1	V6,V4	0.190	0.663	0.082
17	2 1	V5,V4	0.183	0.668	-0.093
18	2 11	V11,V6	0.144	0.704	0.026
19	2 1	V3,V1	0.143	0.705	-0.081
20	2 1	V2,V1	0.083	0.774	-0.079
21	2 11	V9,V7	0.063	0.802	0.080
22	2 11	V9,V4	0.020	0.887	0.080
23	2 1	V4,V2	0.010	0.921	0.015
24	2 11	V10,V3	0.008	0.927	-0.011
25	2 1	V7,V3	0.007	0.935	0.018
26	2 1	V7,V2	0.004	0.948	-0.022
27	2 1	V8,V4	0.000	0.998	0.000

\*\*\*\*\* NONE OF THE UNIVARIATE LAGRANGE MULTIPLIERS IS SIGNIFICANT,  
 \*\*\*\*\* THE MULTIVARIATE TEST PROCEDURE WILL NOT BE EXECUTED.

1

Execution begins at 17:57:50.37  
 Execution ends at 17:58:00.64  
 Elapsed time = 10.27 seconds